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McGREGOR RANGE

DRAFT
Resource Management Plan Amendment and Environmental Impact Statement

Prepared for

United States Department of the Interior
Bureau of Land Management
Las Cruces Field Office

JANUARY 2005

BUREAU OF LAND MANAGEMENT

The Bureau of Land Management is responsible for the balanced management of the public lands and resources and their various values so that they are considered in a combination that will best serve the needs of the American people. Management is based upon the principles of multiple use and sustained yield, a combination of uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife, wilderness, and natural, scenic, scientific, and cultural values.

BLM/NM/PL-05-03-1610

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Las Cruces Field Office
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Las Cruces, New Mexico 88005
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1610 (030)

Dear Reader:

Enclosed for your review and comment is the Draft Resource Management Plan Amendment (RMPA) and Environmental Impact Statement (EIS) for McGregor Range in southern Otero County, New Mexico. This document describes and analyzes alternative plans for managing public land within the boundaries of McGregor Range.

The purpose of this review is to help the Bureau of Land Management (BLM) in its decision-making process. We welcome your comments. Comments on this document may be submitted to this office or presented verbally at the scheduled public open houses and hearings. Written comments should be addressed to:

Tom Phillips, RMPA/EIS Team Leader
Bureau of Land Management
Las Cruces Field Office
1800 Marquess
Las Cruces, New Mexico 88005

In addition to mailing your comments, they may be mailed electronically to: LCFO_RMPA@nm.blm.gov or faxed to the BLM at: (505) 525-4412. Emailed or faxed comments must indicate in the subject line that they are "Comments on Draft McGregor Range RMPA/EIS". All written comments must be postmarked (Email and fax must be received) within 90 days following the date that the Environmental Protection Agency Notice of Availability is published in the *Federal Register* in order to be considered in the Proposed RMPA/Final EIS. Where possible, include in your comments reference to the pages and paragraphs on which you are commenting.

The public open houses and hearings will be held in Alamogordo and Las Cruces. Dates and addresses for these meetings will be advertised in the local news media and listed on the New Mexico BLM Website: http://www.nm.blm.gov. During the open house, information to explain the environmental process and the document will be displayed and BLM specialists will be available to discuss the Draft RMPA/EIS.

Comments, including names and street addresses of respondents, will be available for public review at the BLM Las Cruces Field Office during regular business hours (7:45 a.m. to 4:30 p.m.), Monday through Friday, except holidays, and may be published as part of the RMPA/EIS. Individual respondents may request confidentiality. If you wish to withhold your name or street

address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety. Written and oral comments that result from the 90-day review period, will be considered fully and evaluated in preparing the Proposed RMPA/Final EIS.

When completed, this RMPA will amend the Bureau of Land Management's 1986 White Sands Resource Management Plan and replace Bureau of Land Management's 1990 RMPA for McGregor Range.

Sincerely,

Edwin L. Roberson

Edwin L. Roberson
Field Manager

Enclosure

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SUMMARY

SUMMARY

The Las Cruces Field Office of the Bureau of Land Management (BLM) has prepared this Resource Management Plan Amendment (RMPA) and Environmental Impact Statement (EIS) to address the management of the public land within the boundaries of McGregor Range in southern Otero County, New Mexico. The RMPA will amend BLM's 1986 White Sands Resource Management Plan (RMP) and replace BLM's 1990 RMPA for McGregor Range.

Military use has occurred on McGregor Range since the 1940s. In 1957, public land administered by the BLM was withdrawn from the public domain for use by the military for a period of 10 years (Public Land Order 1470); this status was renewed for an additional 10 years in 1967. In 1976, the U.S. Army submitted an application for renewal of the withdrawal under the provisions of the Federal Land Policy and Management Act of 1976 (FLPMA) (Public Law [PL] 94-579) and the Engle Act (PL 85-337). Approximately 608,385 acres were later made available to the U.S. Army for training and weapons testing through the Military Lands Withdrawal Act of 1986 (PL 99-606), which expired in 2001. In 1999, Congress passed the Military Lands Withdrawal Act (PL 106-65), which withdrew large tracts of public land, including McGregor Range, for military purposes. Today, the status of lands within McGregor Range is a mix of land owned-in-fee by the U.S. Army (approximately 10 percent), Federal land administered by the Department of Agriculture through the U.S. Forest Service (Forest Service) (approximately 3 percent), and the majority is public land administered by the U.S. Department of the Interior through the BLM (approximately 87 percent).

When the withdrawal of McGregor Range was renewed in 1999, PL 106-65 also directed BLM to manage the withdrawn public land within McGregor Range under FLPMA and to develop a management plan. In addition to the legislative requirement to prepare an RMPA for McGregor Range, ongoing military training has changed land uses on portions of the range, and BLM has updated resource management guidelines and/or requirements since the previous RMPA. Therefore, BLM must update the 1990 RMPA to comply with PL 106-65 and to address new uses and resource management guidelines and/or requirements on McGregor Range. Recognizing the land use restrictions necessary to accommodate military uses, BLM's management actions on this withdrawn public land must nevertheless remain consistent with the principles of multiple use and sustained yield as directed by FLPMA.

The planning process to update the RMP was initiated in May 2001 with the scoping phase, which included public meetings, the distribution of newsletters, and other activities to identify issues early in the analysis. The results of scoping are documented in the Scoping Report dated August 2001. A Management Situation Analysis (MSA) was prepared to compile available resource data and analyze the opportunities for management of McGregor Range. The MSA was finalized in January 2004. Alternatives that were evaluated in the EIS were derived from the MSA analysis, broad objectives (or desired future conditions) that were established for each resource or resource use, and the issues and concerns that were identified throughout scoping and the planning process. Alternative and continuing management guidance are discussed in Chapter 2 of the RMPA/EIS. Chapter 3 provides a characterization of the existing environment. The impact assessment was conducted to evaluate the potential impacts that would result from each alternative, and cumulative impacts that also consider past, present, and reasonably foreseeable future actions. This analysis is provided in Chapter 4 of the EIS.

ALTERNATIVES

Four alternatives are considered in the RMPA/EIS. Under the No-Action Alternative, management decisions and guidance would continue as directed in the 1986 RMP and 1990 RMPA. Alternatives A, B, and C provide a range of management options that represent varying levels of emphasis on resource use and production relative to resource conservation, protection, and enhancement of natural and cultural resources. These are summarized in Table 2-2 beginning on page 2-29.

Several alternatives were considered but eliminated from detailed analysis. First, BLM considered designating an area as an area of critical environmental concern (ACEC) for black-tailed prairie dogs. The proposed Black-tailed Prairie Dog ACEC met the criteria for relevance and importance. However, the BLM determined that the area does not require special management on McGregor Range, since the potential factors limiting the population are not affected by BLM management activities. Research, monitoring, and other conservation planning activities will occur on McGregor Range regardless of the ACEC designation.

Second, several ACECs for cultural resources were proposed. However, only those cultural resources on public land that met the criteria for relevance and importance and required special management were carried forward in the alternatives considered.

Finally, additional utility corridors were considered for designation. However, some of these alternatives potentially were incompatible with military activities on McGregor Range. Some of the corridor options were refined and incorporated, as appropriate, into the alternatives that are considered in this Draft RMPA/EIS. Other segments or corridors were eliminated from further analysis.

The alternatives that are considered and analyzed are detailed in Chapter 2 of the RMPA/EIS. Overall, the alternatives may be distinguished generally as follows:

- The No-Action Alternative represents the continuation of existing management plans, policies, and decisions as established in the 1990 RMPA for McGregor Range.
- Alternative A represents a balance of resource use and conservation, and is BLM's preferred alternative.
- Alternative B emphasizes resource use and production.
- Alternative C represents an emphasis on the conservation, protection, and enhancement of natural and cultural resources.

The major issues addressed in the alternatives include rights-of-way, priority watershed and habitat management, vegetative sale areas, ACECs, livestock grazing, and recreation. The alternatives identify right-of-way exclusion and avoidance areas for the first time on McGregor Range, with Alternative A identifying exclusion areas and Alternative C identifying both exclusion and avoidance areas. No exclusion or avoidance areas are identified under Alternative B or the No-Action Alternative. Utility corridors also are identified for the first time on McGregor Range, with two corridors identified under Alternative A, and three identified under Alternative B. No utility corridors would be established under Alternative C or the No-Action Alternative.

The need for watershed management plans was identified in the 1990 RMPA; however, because these plans were not developed during the life of the 1990 RMPA, BLM recognized the need to reprioritize efforts with regard to watershed management. The strategy presented in Alternatives A and C for watershed management focuses on areas BLM identified on McGregor Range that are most in need of management actions to reduce erosion. Alternative B does not include development of a watershed management plan or priority areas. Under the No-Action Alternative, watershed management plans would be developed as planned in the 1990 RMPA.

The No-Action Alternative has several activities related to habitat management. As with watershed management, many of these activities were not implemented during the life of the 1990 RMPA, necessitating a change in focus for habitat management. Alternative A proposes two habitat management plans (HMPs) that encompass a large part of McGregor Range: one for the management of the Sacramento Mountains foothills habitat and one for the grassland habitat. Alternative C allows for development of the same HMPs, but they would include larger areas, while Alternative B allows for management of wildlife habitat without development of HMPs.

Sale of vegetative material historically has been allowed on McGregor Range; however, changes in the military mission have necessitated changes in the area designated for vegetative sales. Since the 1990 RMPA, Centennial Range has been developed as a military impact area, and areas of Centennial Range and the Class C Bombing Range are within areas designated in 1990 for vegetative sales. Because vegetative sales cannot occur in military impact areas, Alternative A does not identify these areas as available for vegetative sales. Alternative B increases the size of the vegetative sale areas to allow the potential for increased use of the vegetative resource (excluding military impact areas). In order to provide increased protection for the vegetation resource, vegetative sales would not occur under Alternative C.

BLM also has proposed several changes in the management of ACECs. Under the No-Action Alternative, there is one ACEC—the Black Grama Grassland ACEC. This ACEC would be maintained under all alternatives except Alternative B, where this designation would be eliminated. In addition, Alternatives A and C propose designating the Escondida Site as an ACEC, and Alternative C proposes two additional ACECs, one for historic and one for prehistoric cultural resources.

Although there are varying degrees of management proposed under each alternative for livestock grazing and recreation, the most substantive changes in management occur under Alternative C. In order to provide increased resource protection, livestock grazing and recreation would not be allowed on McGregor Range under Alternative C.

AFFECTED ENVIRONMENT

To document the existing conditions on McGregor Range and establish a baseline for evaluating potential impacts, the current resources and land uses and their conditions are described in Chapter 3. Most information was gathered from existing data maintained by the BLM. The discussion is organized by resource and resource use, and related issues, and includes the following sections:

- Lands and Realty
- Transportation and Access
- Geology, Mineral and Energy Resources
- Soils, Water, and Watershed Management
- Air Quality
- Vegetation
- Wildlife
- Special Status Species
- Livestock Grazing
- Fire Management
- Hazardous Materials
- Cultural Resources
- Paleontological Resources
- Recreation
- Visual Resources
- Special Management Areas
- Social and Economic Conditions
- Unexploded Ordnance

ENVIRONMENTAL CONSEQUENCES

The predicted consequences, or potential effects, on the environment of implementing the alternatives were identified for each resource. The results of this analysis are presented in Chapter 4. A summary of potential impacts, by resource and alternative, is provided in Table S-1.

Overall, potential impacts on environmental resources are anticipated to be minimal under all alternatives. Alternative A is BLM's preferred alternative, and provides management decisions that, relative to the No-Action Alternative, are expected to improve resource conditions. These decisions include the designation of utility corridors that would consolidate linear facilities (e.g., transmission lines, pipelines), development of watershed plans based on range assessment criteria, establishment of the Escondida Site

ACEC, and identification of conditions on vegetative sales based on ecological conditions. In addition, Alternative A includes the development of an access management plan that would lead to individual route designations, and would enhance the recreation program through educational materials, the identification of areas suitable for recreation opportunities, and the development of terms and conditions for each use. These efforts would result in more consistent management of the recreation and public access programs, and would promote public safety and resource protection on McGregor Range.

Alternative B shares the same general management guidance as Alternative A, but emphasizes public access and use of McGregor Range. Access is necessarily limited in all alternatives due to military use on McGregor Range. Alternative B would result in more access for off-highway vehicle (OHV) and recreational use generally. However, the lack of watershed plans and elimination of the existing ACEC may result in degradation of habitat and cultural resources.

Alternative C is the most restrictive alternative in terms of public access to McGregor Range. Restricted access impacts limit recreation use, an impact that has social and minor economic repercussions. Natural and cultural resource protection is most extensive under this alternative, but must be balanced with BLM's policy guidance and requirements including the FLPMA mandate of multiple use and sustained yield.

Cumulative effects are the effects that result from incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (Federal or non-Federal) or person undertakes such other actions. Overall, past and present actions on McGregor Range have resulted in minimal disturbance to environmental resources on the range. This is because public access and resource uses have been largely restricted, and military activities affect only small portions of McGregor Range. This resulting positive effect on resources is enhanced further by McGregor Range's location adjacent to other military ranges with similar use patterns and restrictions. Reasonably foreseeable future actions and the RMPA alternatives for McGregor Range would continue this pattern of limited resource use.

Due to BLM's adoption of the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (Standards and Guides), the mitigation of potential cumulative impacts to watersheds, vegetation, soils, and other resources that could result from grazing should be well integrated throughout McGregor Range. These range management strategies are currently consistent with the research on arid Southwestern grasslands ecological science and would be adapted to future research and the condition of McGregor Range as appropriate to maintain conformity to BLM policy and regulations. In addition, implementation of the Standards and Guides would mitigate potential impacts to resources that may result from the construction of facilities associated with land use authorizations, right-of-way grants, recreation, or other activities.

Also, BLM developed a suite of best management practices, which are designed to minimize surface disturbance and effects on resources, and retain the reclamation potential of disturbed areas. The practices represent effective and practical means of accomplishing the management goals and objectives of the BLM and should be used as a guide when preparing plans for individual projects.

This RMPA/EIS does not address the effects of specific actions that may occur over the planning period. More specific mitigation measures or additional National Environmental Policy Act (NEPA) analysis may be required for some future proposed uses and actions, and would be determined on a case-by-case basis in accordance with the management framework provided in this RMPA.

CONSULTATION AND COORDINATION

The analysis for this RMPA/EIS was completed in consultation with other agencies, State and local governments, and the public. These activities and participants are discussed in Chapter 5 of the RMPA/EIS. Consultation has been initiated with the U.S. Fish and Wildlife Service, and a Biological Assessment will be completed prior to the Proposed RMPA/ Final EIS. The New Mexico Department of Game and Fish and State Historic Preservation Office also have been contacted regarding this RMPA/EIS. BLM contacted the Mescalero Apache Tribe, Fort Sill Apache Tribe, and Ysleta del Sur Pueblo to inform them of the planning effort, request the identification of traditional cultural places and resources that should be considered, and invite them to participate in the preparation of the RMPA/EIS. The U.S. Army, Fort Bliss, plays a critical role in the management and use of McGregor Range, and has been involved throughout the process by sharing information, participating in RMPA development, and reviewing draft documents.

The Draft RMPA/EIS will be distributed to agencies and the interested public for review and comments. About midway through the 90-day review period, BLM will conduct public hearings to listen to and understand the public's comments on the Draft RMPA/EIS. All input on the Draft will be considered and addressed in the Proposed RMPA/Final EIS.

TABLE S-1
SUMMARY OF POTENTIAL IMPACTS BY RESOURCE AND ALTERNATIVE

Resource	No-Action Alternative	Alternative A (BLM's preferred alternative)	Alternative B	Alternative C
Lands and Realty	Overall potential impacts are expected to be minimal, but may include a less streamlined application evaluation process relative to Alternatives A and C, and the lack of specific protection for sensitive resources could lead to impacts if not mitigated on a case-by-case basis.	Under Alternative A, 171,948 acres of exclusion areas (areas determined to be unsuitable for right-of-way) would result in protection from disturbance to selected military training areas, wilderness study areas (WSAs), and ACECs. Two utility corridors would minimize proliferation of rights-of-way, thereby minimizing related impacts, and streamline the siting and permitting process. Adequate capacity would be provided for the anticipated volume of right-of-way applications.	Three utility corridors would minimize proliferation of rights-of-way, thereby minimizing related impacts, and streamline the siting and permitting process. Flexibility to site facilities outside established corridors would be greater than under Alternative A due to the lack of exclusion areas; however, similar to the No-Action Alternative, protections for unique resources and safety considerations would not be formalized.	Under Alternative C, 172,208 acres of exclusion areas would result in protection from disturbance from the same general areas as under Alternative A. Impacts related to avoidance areas (434,023 acres) and the prohibition of additional rights-of-way would include reduced flexibility to grant rights-of-way or ensure compliance with current BLM guidance and the National Energy Policy.
Transportation and Access (Note: OHV use areas are addressed under Recreation.)	Without an overall evaluation of existing routes or plan for addressing access that would lead to open, limited, or closed individual route designations, transportation and access policy may not be consistent with or reflective of current resource conditions. Secondary and not necessarily authorized route proliferation also could occur if changes are not implemented to enforce restrictions on driving off of the route network.	Under Alternative A, it is likely that access to some roads would be limited or eliminated (closed).	Increased access would facilitate recreational opportunities in accordance with the management guidance for recreation. Potential long-term impacts of this alternative include the potential for degradation or loss of natural or cultural resources as a result of road construction and as access to less disturbed terrain is increased.	It would be expected that an access plan developed under this alternative would close and/or limit access to more roads than the other action alternatives. This alternative is the most protective of natural resources, but might impede achievement of the multiple-use mandate due to the emphasis on restricting public access.

TABLE S-1
SUMMARY OF POTENTIAL IMPACTS BY RESOURCE AND ALTERNATIVE

Resource	No-Action Alternative	Alternative A (BLM's preferred alternative)	Alternative B	Alternative C
Mineral and Energy Resources	Overall impacts are expected to be minimal since mineral entry on the range is prohibited by PL 106-65. Also, the potential for locatable minerals is low and the potential for leasable minerals is low-to-moderate. Some ground disturbance would result from the extraction of saleable minerals by the U.S. Army and State or county applicants, but overall impacts are expected to be minimal due to the environmental compliance that would be required. Additional potential impacts of limited access to mineral resources on the McGregor Range would be primarily economic.	Impacts would be the same as the No-Action Alternative.	Impacts would be the same as the No-Action Alternative.	Impacts would be the same as the No-Action Alternative.
Soils, Water, and Watershed Management	Prescribed watershed management plans would not address the long-term management problems identified in the rangeland assessments and, therefore, the watershed management program would be both internally inconsistent and inconsistent with recent BLM-approved methods for land health assessment and stewardship. Impacts on soil resources are expected to be minimal or beneficial over the long-term, assuming the development and implementation of management plans and/or mitigation plans that	Alternative A would have a positive impact due to (1) the change in location of the watershed management plans to watersheds selected based on the range assessment data and (2) the implementation of erosion-control measures in accordance with the Standards and Guides.	The lack of any watershed management plans would provide an unclear impact on the soil, water, and watershed resources of McGregor Range. While the short-term benefits to resource extractive and military uses may be expected, the lack of a plan might cause for longer-term problems in the affected watersheds that ultimately restrict these uses.	Under Alternative C, areas of high erosion hazards would be closed to road building. This Alternative also would greatly limit the ability of the U.S. Army to use the range for training purposes without extensive new environmental management activities. Erosion protection is an adaptive process, depending on time of year, soil moisture, rainfall, and plant cover. Alternative C would remove some of this management adaptability from BLM and Fort Bliss. The positive

TABLE S-1
SUMMARY OF POTENTIAL IMPACTS BY RESOURCE AND ALTERNATIVE

Resource	No-Action Alternative	Alternative A (BLM's preferred alternative)	Alternative B	Alternative C
	are consistent with the information in the Natural Resources Conservation Service (NRCS) soil survey and Standards and Guides.			impacts related to watershed management plans would be the same as described under Alternative A.
Air Quality	Impacts from entrainment of particulate matter resulting from ground-disturbing activities would be temporary and localized. Restricting the use of recreational vehicles to existing roads also limits air quality impacts, which may be mitigated further through dust-control measures and limiting travel speed.	Impacts are the same as the No-Action Alternative, except that more areas would be closed to OHV use, reducing potential impacts on air quality further.	Impacts are the same as the No-Action Alternative, except that the construction and use of additional roads that could result from the emphasis on increased public access could create additional air quality impacts.	Impacts are the same as Alternative A, except that more areas would be closed to OHV use, reducing potential impacts on air quality further.
Vegetation	Impacts that could occur under existing management include increased invasion by noxious weeds due to the potential inadequacy of existing noxious weed controls and a decrease in vegetation community diversity.	Under Alternative A, the implementation of a general vegetation management and protection process by maintaining overall monitoring of the vegetation on McGregor Range would be considered beneficial. The identification of conditions for removal of vegetation and seed collection based on the ecological condition of the vegetation community would be considered beneficial.	Under Alternative B, the elimination of the ACEC designation likely would result in substantial long-term decrease in vegetation on public land and substantial long-term alteration of the vegetation and wildlife habitat on lands that were within the ACEC.	Potential impacts are the same as Alternative A, except that the lack of vegetative sales would end removal of vegetation from McGregor Range.
Wildlife Habitat	The evaluation of existing HMPs could result in reduced protection for wildlife habitat and forage and/or cover areas	Alternative A would provide a general wildlife habitat management process by maintaining overall monitoring of the wildlife on McGregor	Under Alternative B, wildlife habitat within grasslands and the Sacramento Mountains foothills would be managed without the development of	Under Alternative C, the HMPs under Alternative A would be expanded to encompass larger areas. The additional protection would be

TABLE S-1
SUMMARY OF POTENTIAL IMPACTS BY RESOURCE AND ALTERNATIVE

Resource	No-Action Alternative	Alternative A (BLM's preferred alternative)	Alternative B	Alternative C
		Range, which would be considered beneficial. The development of two habitat management plans (HMPs) would focus management of some areas on habitat values, and would be considered beneficial to wildlife habitat.	HMPs. This reduction of protection would be considered an impact if it leads to a substantial loss of grasslands that support small mammal populations important as raptor prey.	considered a beneficial impact due to the larger area that would be subject to a management focus on habitat values.
Special Status Species	The lack of surveys and the potential identification of new special status species, as well as the lack of specific management directives could lead to long-term impacts on special status species. The Black Grama Grassland ACEC would benefit areas occupied by the Tularosa black-tailed prairie dog and potential aplomado falcon habitat.	Under Alternative A, management activities would provide a process for special status species management on McGregor Range, which would be considered beneficial. Cooperation with U.S. Fish and Wildlife Service (USFWS) regarding aplomado falcon issues would benefit the species. The Black Grama Grassland ACEC also would provide beneficial management for potential aplomado falcon habitat.	Impacts would be the same as Alternative A, except that aplomado falcon release opportunities would not be considered and the ACEC eliminated.	Impacts would be the same as under Alternative A.
Livestock Grazing	Impacts on vegetation may affect forage, including a decrease in grassland community diversity and increased invasion by noxious weeds that would negatively affect the ecological range condition and impact livestock use. Impacts would be reduced through the implementation of the Co-Use Area HMP grazing restrictions and limits on key forage species utilization.	Alternative A would result in beneficial impacts on livestock grazing management by providing methods to reduce impacts on grazing resources.	Impacts would be the same as Alternative A, except that the type of livestock and the number of horses per pasture would be determined based on ecological conditions. In addition, the elimination of the ACEC would open those lands for grazing.	Alternative C would improve ecological range condition; however, it would affect the grazing program by eliminating livestock grazing on McGregor Range.

TABLE S-1
SUMMARY OF POTENTIAL IMPACTS BY RESOURCE AND ALTERNATIVE

Resource	No-Action Alternative	Alternative A (BLM's preferred alternative)	Alternative B	Alternative C
Fire Management	Prescribed burns and wildfire result in temporary impacts related to loss of vegetation, smoke, threats to areas of urban interface, and changes to the visual setting. Some impacts on areas of urban interface and smoke management may be mitigated. Long-term impacts include the promotion of biological diversity and foreage production, and reduction of fuel hazards.	Impacts would be the same as the No-Action Alternative, except that the proposed plan would address BLM's Decision Area comprehensively, encompassing a larger area than the No-Action Alternative, and incorporate recent fire-management planning.	Impacts would be the same as Alternative A.	Impacts would be the same as Alternative A.
Hazardous Materials	BLM has no jurisdiction over clean-up activities related to the U.S. Army. Management of hazardous materials is the responsibility of the U.S. Army, and the U.S. Army has protocol in place to control the risk associated with public exposure to hazardous waste. BLM would continue to respond to reports of hazardous waste spill incidents found in areas where the public has access and would perform necessary clean-up.	Under Alternative A, general policies and procedures regarding management of BLM hazardous materials and wastes would continue to be enforced by BLM.	Same as Alternative A.	Same as Alternative A, although public access to McGregor Range (and, therefore, to an potential hazardous materials) would be appreciably reduced.

TABLE S-1
SUMMARY OF POTENTIAL IMPACTS BY RESOURCE AND ALTERNATIVE

Resource	No-Action Alternative	Alternative A (BLM's preferred alternative)	Alternative B	Alternative C
Cultural Resources	Impacts on cultural resources may occur as a result of prescribed burns and wildfire or ground-disturbing activities. These impacts are expected to be nominal given the small area and, therefore, few potential sites would be affected, but fires could affect surface or near-surface charcoal in archaeological features and degrade the potential for radiocarbon dating such features.	The balanced use strategy of Alternative A is likely to result in a level of compliance reviews comparable to the existing conditions (typically a few projects annually). The special management measures for the Escondida Site would increase protection for those resources.	Alternative B provides for greater use of resources, the compliance element of the cultural resource program is likely to require more Section 106 project reviews and, therefore, greater BLM staff efforts. Management of Escondida Site would be less intensive; an ACEC would not be designated although the area would remain closed to OHV use and the road through the ruin would be designated for limited use.	Alternative C emphasizes resource conservation, and fewer Section 106 reviews would be required. Alternative C also would involve more intensive management of Escondida Site, as well as four other high-value prehistoric sites and two historic sites, primarily through the designation of ACECs on approximately 593 acres.
Paleontological Resources	Little is known about the paleontological resources on McGregor Range. Adherence to the guidelines as set forth in the BLM's General Procedural Guidance for Paleontological Resource Management (BLM Manual H-8270-1) is expected to reduce or eliminate adverse impacts on paleontological resources from ongoing surface-disturbing activities.	Same as the No-Action Alternative.	Same as the No-Action Alternative.	Same as the No-Action Alternative.
Recreation	Overall access for recreation opportunities and OHV use is restricted based on compatibility with military training and safety considerations. Approximately 40 acres would be closed to OHV use. OHV-use limitations result in restrictions on public access to public land, but would	Under Alternative A, the development of an educational program would enhance public recreation opportunities while minimizing safety concerns. The identification of consistent recreation opportunities would improve the ability to manage effectively for these uses.	Impacts would be the same as under Alternative A, except that less acreage would be closed to OHV use (40 acres)	Under Alternative C, a blanket restriction on recreation in areas deemed safe for public access may hinder BLM's ability to meet the FLPMA multiple use mandate. OHV use would be restricted to designated roads (New Mexico Highway 506 and

TABLE S-1
SUMMARY OF POTENTIAL IMPACTS BY RESOURCE AND ALTERNATIVE

Resource	No-Action Alternative	Alternative A (BLM's preferred alternative)	Alternative B	Alternative C
	protect resources from potential impacts that may include the degradation of vegetation and visual resources; impacts on wildlife due to noise, activity, or degradation of habitat; or damage to cultural or paleontological resources. The lack of specific program guidance and education materials for recreation may result in changes to the recreation setting due to trailblazing or the informal establishment of use areas, spurring adverse impacts to resources or safety concerns.	Impacts related to OHV use are similar to the No-Action Alternative, although more area would be closed to OHV use under Alternative A (3,936 acres).		county roads only), restricting public access but providing the most protection of resources. OHV use would be closed on 57,256 acres.
Visual Resources	Higher quality and more sensitive areas (i.e., Class II and III areas) would be managed to minimize change to visual resource conditions, although changes to visual conditions could occur throughout the majority of the Planning Area. However, due to the lower scenic quality and large acreage associated with Class IV in the Planning Area, the overall effect on visual resources is anticipated to be low. Temporary impacts from prescribed burns or wildfire would be mitigated.	Potential impacts would be the same as under the No-Action Alternative, with several exceptions. The establishment of utility corridors would limit the proliferation of linear utilities (e.g., transmission lines), minimizing visual impacts. The establishment of an Escondida Site ACEC would promote protective measures that indirectly would maintain or enhance scenic quality in this area.	Potential impacts would be the same as under the No-Action Alternative.	Under Alternative C, the prohibition of additional utility corridors and rights-of-way and designation of new ACECs would reduce further the potential for visual impacts relative to other alternatives.

TABLE S-1
SUMMARY OF POTENTIAL IMPACTS BY RESOURCE AND ALTERNATIVE

Resource	No-Action Alternative	Alternative A (BLM's preferred alternative)	Alternative B	Alternative C
Special Management Areas	Approximately 3,718 acres would be managed under the Black Grama ACEC. There would be no impacts on the boundaries or management of these special management areas. Potential impacts on the resources that these areas are being managed for (vegetation, wildlife habitat, visual resources) also are expected to be minimal, but may include the re-evaluation on HMPs or inadequate programs to control noxious weeds.	Approximately 3,936 acres would be managed under the Black Grama and Escondida ACECs. Under Alternative A, beneficial impacts in terms of cultural resource protection would be expected to result from the creation of the new ACEC, due to the closure to OHV use and protective measures that would be developed as part of the activity plan.	No ACECs would occur under this alternative. Under Alterative B, the Black Grama ACEC would be eliminated, resulting in potential long-term alteration of the vegetation and wildlife habitat within the ACEC as a result of the loss of protective measures.	Approximately 4,311 acres would be managed as ACECs. Under Alternative C, beneficial impacts would include cultural resource protection due to more intensive management of the Escondida Site and protective measures that would be developed for the management of the new ACECs.
Social and Economic Conditions	No substantial impacts were identified; continued access for recreation would have minor positive economic impacts from the expenditures of recreation participants and the nonmarket value of the area for the recreation experience that is offered.	Under Alternative A, the reduction in vegetative sales areas could result in minor socioeconomic impacts for those individuals, groups, or organizations that currently participate or would potentially participate in the vegetative sales program in the future.	Under Alternative B, vegetative sales areas would increase, which could allow for a greater variety and possibly greater volume of vegetative sales, but also would provide measures for protection of vegetative resources through the limitations or restrictions that could be imposed in the conditions for their removal. Fewer restrictions on OHV use likely would have positive social impacts, particularly for those who value motorized forms of recreation.	Under Alterative C, no additional utility corridors and rights-of-way would be permitted, which has the potential for adverse impacts on the utility industry, and the customers they serve, should a need for new utility linear or site-specific facilities arise. The elimination of vegetative sales areas would have minor negative impacts on those that currently use the program. The discontinuation of livestock grazing on McGregor Range would have negative economic and social impacts. Recreation-related expenditures probably would be retained within the region, but there could be some

TABLE S-1
SUMMARY OF POTENTIAL IMPACTS BY RESOURCE AND ALTERNATIVE

Resource	No-Action Alternative	Alternative A (BLM's preferred alternative)	Alternative B	Alternative C
				groups, communities, or businesses that negatively are impacted locally by the elimination of recreation uses. Social impacts would be most pronounced in the loss of recreation experience unique to the McGregor Range setting.
Unexploded Ordnance	Any potential impacts would be mitigated by limited public access and clearance prior to any ground-disturbing activities or prescribed burns.	Same as the No-Action Alternative.	Same as the No-Action Alternative.	Same as the No-Action Alternative, although the elimination of grazing and recreation would reduce the potential public interface with unexploded ordnance.

1.0

Introduction

1.0 INTRODUCTION

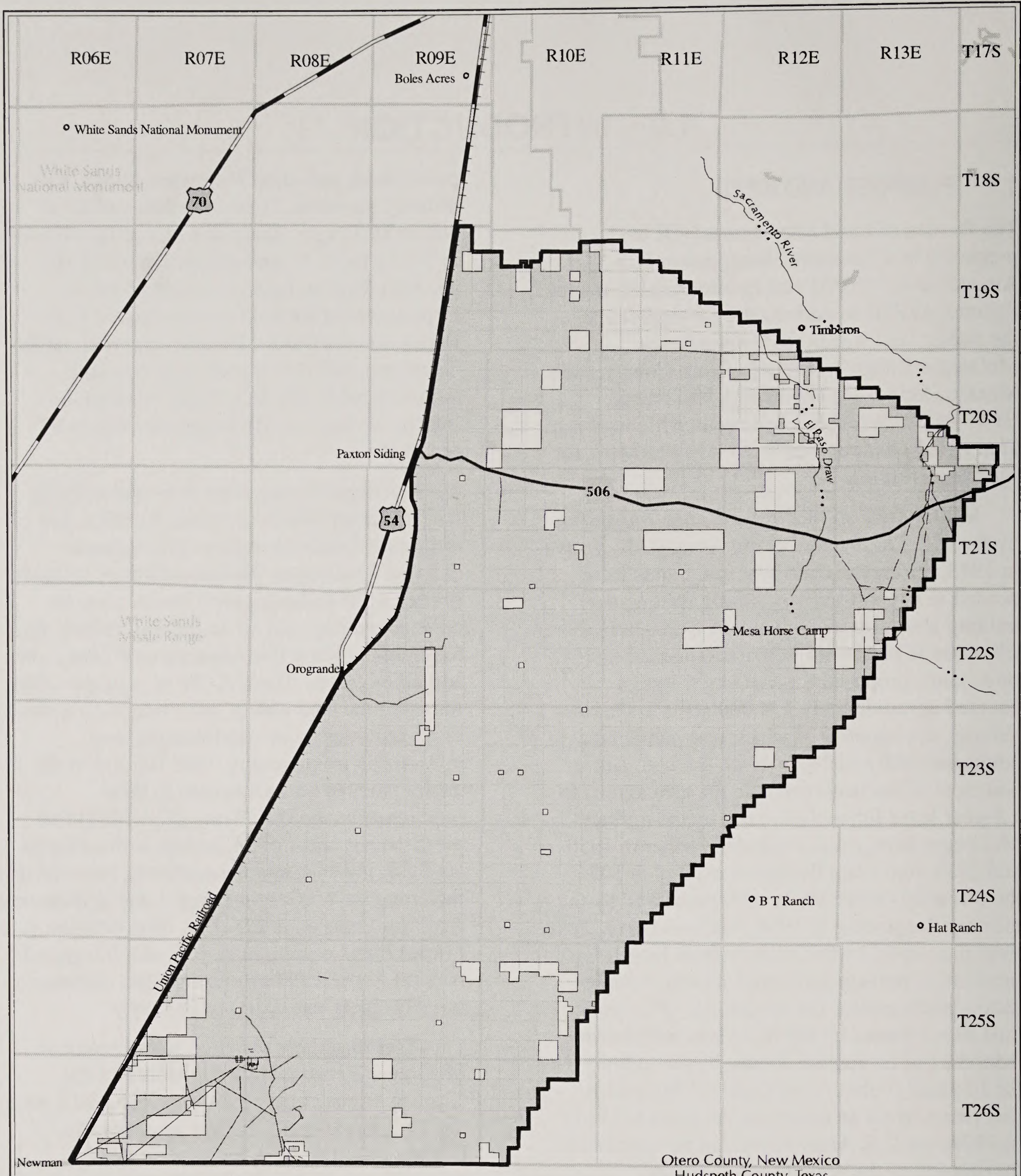
1.1 PURPOSE AND NEED

The Bureau of Land Management (BLM) is preparing this Resource Management Plan Amendment (RMPA) and Environmental Impact Statement (EIS) to address the management of the public land within the boundaries of McGregor Range in southern Otero County, New Mexico (Map 1-1). The RMPA will amend BLM's 1986 White Sands Resource Management Plan (RMP) and replace BLM's 1990 RMPA for McGregor Range.

Military use on McGregor Range was begun by the U.S. Department of the Army (U.S. Army) in 1948, during the Cold War era. Lands were needed to support military missile-testing and training activities in conjunction with nearby Fort Bliss and White Sands Missile Range. At that time, lands proposed for McGregor Range covered approximately 374,000 acres in Otero County, the majority of which was public land administered by BLM. In 1949, the U.S. Army and most of the landowners in the area agreed to a 5-year lease for exclusive use by the military. McGregor Range was expanded further in 1950 and 1952 and, when the leases expired in 1954, the privately owned lands were purchased by the military. Beginning in 1956, lands on Otero Mesa were purchased by the military from local ranchers to provide additional area for missile testing and training. On August 21, 1957, public land administered by the BLM was withdrawn from the public domain for use by the military for 10 years (Public Land Order 1470), which was renewed for an additional 10 years in 1967. In 1976, the U.S. Army submitted an application for renewal of the withdrawal under the provisions of the Federal Land Policy and Management Act of 1976 (FLPMA) (Public Law [PL] 94-579) and the Engle Act (PL 85-337). Approximately 608,385 acres later were made available to the U.S. Army for training and weapons testing through the Military Lands Withdrawal Act of 1986 (PL 99-606), which expired in 2001 (U.S. Army 2000). In 1999, Congress passed the Military Lands Withdrawal Act (PL 106-65), which withdrew large tracts of public land, including McGregor Range, for military purposes. Today, the status of lands within McGregor Range is a mix of land owned-in-fee by the U.S. Army (approximately 10 percent), Federal land administered by the Department of Agriculture through the U.S. Forest Service (Forest Service) (approximately 3 percent), and the majority is public land administered by the U.S. Department of the Interior through the BLM (approximately 87 percent).

McGregor Range is the principal training facility for air defense systems, a critical part of military operational readiness for national defense. Training on McGregor Range includes limited troop and equipment maneuvers, air-defense training, and air-to-ground training for multiple-branch active and reserve military units and allied forces. The U.S. Army is responsible for using the land wisely, assessing the impacts of its activities on the environment, and minimizing or mitigating those impacts to the extent practicable. In response to these requirements, the U.S. Army (Fort Bliss) has prepared a number of documents addressing its land use, impacts, and management, most notably including the McGregor Range Land Withdrawal Renewal Legislative EIS, Fort Bliss Mission and Master Plan Programmatic EIS, and Integrated Natural Resource Management Plan, completed in 1999, 2000, and 2001, respectively.

Plans to address resource management on McGregor Range include the 1980 EIS for Grazing Management in the McGregor EIS Area, the 1981 Grazing EIS for the Southern Rio Grande Planning Area, and the 1986 White Sands Resource Area RMP. When the withdrawal of McGregor Range was renewed by the Military Lands Withdrawal Act of 1986 (PL 99-606), a provision of the law required that BLM manage the land under FLPMA and develop a management plan for the area. In response, the White Sands RMP was amended in 1990. The intent of the 1990 RMPA for McGregor Range was to provide general direction for managing the withdrawn public land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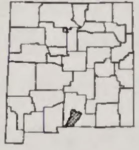
T26S
Boles Acres
White Sands National Monument
White Sands National Monument
70
Sacramento River
Timberon
El Paso Draw
Paxton Siding
506
54
White Sands Missile Range
Mesa Horse Camp
Orogrande
B T Ranch
Hat Ranch
Union Pacific Railroad
Newman
Otero County, New Mexico
Hudspeth County, Texas

Decision Area and Planning Area

McGregor Range RMPA/EIS

October 21, 2004

Location in New Mexico



Universal Tranverse Mercator
Zone 13, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

SCALE 1 : 500,000

Legend:

Areas:
- ▭ Planning Area
- ▨ Decision Area

General Reference:
- Primary Roads
- Secondary Roads
- County Roads
- Paved or Military Restricted Roads
- Public Land Survey System
- Union Pacific Railroad
- Streams
- ○ Geographic Place

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SOURCE: Base Map information: BLM, Las Cruces Field Office, 2001
Jurisdiction Information: BLM, Las Cruces Field Office, 2001

URS

Map 1-1

on McGregor Range and guide all resource actions to achieve plan decisions.

When the withdrawal of McGregor Range was renewed in 1999, PL 106-65 also directed BLM to manage the withdrawn public land within McGregor Range under FLPMA and to develop a management plan. In addition to the legislative requirement to prepare an RMPA for McGregor Range, ongoing military training has changed land uses on portions of the range, and BLM has updated resource management guidelines and/or requirements since the previous RMPA. Therefore, BLM must update the 1990 RMPA to comply with PL 106-65 and to address new uses and resource management guidelines and/or requirements on McGregor Range. Recognizing the land use restrictions necessary to accommodate military uses, BLM's management actions on this withdrawn public land must nevertheless remain consistent with the principles of multiple use and sustained yield as directed by FLPMA.

The result of the BLM planning process will be an RMPA that provides a framework for managing the withdrawn public land and for allocating resources within McGregor Range. The RMPA establishes areas for limited, restricted, or exclusive uses; allowable levels of production; allowable resource uses; resource condition objectives; program constraints; and general management direction. The RMPA also sets forth the land-use decisions, terms, and conditions for guiding and controlling future management actions on withdrawn public land within McGregor Range. Preparation of the RMPA is guided by BLM planning regulations Title 43 Code of Federal Regulations 1600-1610 (43 CFR 1600-1610) issued under the authority of FLPMA and by BLM Handbook H-1601-1 (Land Use Planning Handbook), and associated regulations.

The EIS identifies the potential impacts that resource management alternatives could have on the environment and identify appropriate measures to mitigate those impacts. The primary purpose of the EIS is to analyze and document the direct, indirect, and cumulative impacts of reasonably foreseeable future actions resulting from BLM's management decisions. By law, these impacts must be analyzed before an agency makes any irreversible commitment of resources. The EIS prepared with the RMPA is intended to satisfy the requirements of the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1508), and other associated regulations.

This RMPA/EIS, prepared to meet current requirements of PL 106-65 and FLPMA, is not the final review upon which approval of all proposed actions on McGregor Range will be based. Rather, the RMPA will identify general management objectives for each resource area. Decisions on all subsequent site-specific actions will be tiered from this RMPA/EIS. That is, further environmental analyses and additional NEPA compliance would be required.

1.2 LOCATION

McGregor Range is located in the south-central portion of New Mexico in Otero County (refer to Map 1-1). McGregor Range is bordered by the New Mexico-Texas state line along the southern boundary, Lincoln National Forest along the northern boundary, and U.S. Highway 54 along the western boundary.

According to PL 106-65 and real estate records, McGregor Range includes a total of 697,472 acres of Federal land. Of that land, 608,385 acres are BLM-administered land withdrawn from the public domain for military use, 71,083 acres are owned by the U.S. Department of Defense, and 17,864 acres are administered by the Forest Service.

However, BLM is using geographic information system (GIS) data for the purpose of land use planning analysis and the best available current GIS data reflect acreages that differ from those listed in PL 106-65. According to the GIS data, McGregor Range has a total of 694,981 acres of Federal land. Of that land, 606,233 acres are BLM-administered public land withdrawn from the public domain for military use, 70,884 acres are owned by the U.S. Department of Defense, and 17,864 acres are administered by the Forest Service. The land administered by the

Forest Service within McGregor Range is used by the U.S. Army in accordance with a memorandum of understanding between the Forest Service and U.S. Army, Fort Bliss.

The entire area within McGregor Range is referred to as the Planning Area. BLM is responsible for disclosing the potential effects of its decisions, regardless of the jurisdiction, in the Planning Area, and in some cases areas beyond the Planning Area. The area for which BLM has management authority is referred to as BLM's Decision Area.

1.3 PLANNING PROCESS

The RMPA process employs the nine basic steps of the BLM planning process, which are listed below and described in the planning regulations (Manual 1617, Section 42):

- Identification of issues
- Development of planning criteria
- Data and information collection
- Management situation analysis
- Formulation of alternatives
- Estimation of effects of the alternatives
- Selection of the preferred alternative(s)
- Selection of the plan amendment
- Monitoring and evaluation

The process requires the use of an interdisciplinary team of resource specialists to complete each step.

1.3.1 Step 1 – Identification of Issues

Issues were identified primarily through the scoping process at the beginning of the project. Scoping, and the RMPA/EIS process, began with the publication in the *Federal Register* of the Notice of Intent (NOI) to amend the RMP, prepare an EIS, and conduct public scoping meetings. The NOI was published on May 15, 2001. In addition to the NOI, BLM prepared and mailed a scoping notice in early June 2001. Also, a media release introducing the project and announcing the scoping meetings was prepared and issued by BLM to local and regional newspapers, television, and radio.

Two public scoping meetings were conducted by the BLM in June 2001 (see Chapter 5). A total of 29 people attended the two meetings and 47 oral comments were received. In addition to the comments received during the meetings, a total of 42 comment forms and letters were submitted to the BLM. The scoping officially ended on July 6, 2001; however, BLM continued to accept and analyze comments received after that date.

All of the comments and questions received were compiled, reviewed, and analyzed to identify the issues to be addressed in the RMPA/EIS. The comments and issues raised during scoping, and where they are addressed in this document, are summarized in Table 1-1. The scoping process, including a summary of comments and issues, was documented in a Scoping Summary Report in August 2001 and sent to the interested parties on the mailing list. A complete record of scoping is on file at the BLM Las Cruces Field Office.

1.3.2 Step 2 – Development of Planning Criteria

Planning criteria are established to provide focus for data collection efforts, ensure compliance with legal mandates, and facilitate decision making. The planning criteria to guide the development of the RMPA/EIS include the following:

- Resource management actions shall not impair, and shall be compatible and consistent with, military use in accordance with the Withdrawal Act (PL 106-65)
- Comply with laws, executive orders, and regulations, and be consistent with the principles of multiple use and sustained yield
- Clarify BLM and Fort Bliss management responsibilities
- Develop reasonable and achievable resource outputs within available technology and budget constraints
- Provide for public access to and across McGregor Range where compatible
- Provide for mineral development where compatible

TABLE 1-1
ISSUES IDENTIFIED THROUGH THE SCOPING PROCESS

Issue	Section(s) of RMPA/EIS Where Issue Is Addressed
How will effects, including cumulative effects, be determined on Otero Mesa considering there are two RMPAs being prepared for the same area?	Sections 1.4, 4.3
Consider an alternative that would provide for no oil and gas leasing.	Section 2.3.2
Consider an alternative to provide preservation and enhancement of wildlife resources and habitats.	Section 2.3.2
Ensure that the RMPA/EIS addresses all of McGregor Range.	Section 1.2
Oil and gas leases should be analyzed fully, not just from a programmatic standpoint, before a lease is granted.	Section 2.2.2
How often is the range closed to the public?	Sections 3.5, 3.18.4
Allow a reasonable amount of public use including access for hunting and access to archaeological sites.	Section 2.3.2
How will activities that may cross into the Sacramento Ranger District be addressed?	Sections 4.2.2, 4.2.14
Designate roads as open or closed to limit damage from off-highway vehicle (OHV). Concerned about damage to resources caused by OHVs.	Sections 4.2.2, 4.2.4, 4.2.14
Manage roads, ways and trails in accordance with Executive Orders 11644 and 11989.	Section 2.2.14
Address future development of utility corridors.	Sections 2.3.2, 4.2.1
Concern about impacts on and preservation of resources (water availability and use, grasslands and grazing, spread and introduction of noxious weeds, grasslands, wildlife and wildlife habitat, habitat fragmentation, special status species, bird electrocution and collision with communications towers, rangeland, cultural resources).	Sections 4.2.4, 4.2.6, 4.2.7, 4.2.8, 4.2.9, 4.2.12
Identify and survey for new Wilderness Study Areas (WSAs), ACECs, and roadless areas.	Sections 2.3.1, 2.3.2
Examine the beneficial economic impact from oil and gas exploration and development.	Section 4.2.17
Clarify fire-fighting responsibilities between BLM and Fort Bliss.	Section 3.14
Highlight fire management in the RMPA/EIS and develop Fire Management Plans/Land Fire Regimes.	Sections 3.14, 4.2.10
Does the timing of live-fire training consider fire dangers (i.e., when fire danger is high)? Can BLM regulate the timing of live-fire training when fire danger is high?	Section 3.14.4.2
Include a list of hazardous-waste sites and suspect hazardous-materials sites on McGregor Range and their cleanup status.	Section 3.15
Define BLM, Fort Bliss, and U.S. Forest Service management responsibilities on McGregor Range.	Section 1.1, Resource section in Chapter 3
Can Fort Bliss over-rule management decisions made by BLM?	Section 1.1, Resource section in Chapter 3
What is the current and future level of military training on McGregor Range, especially Otero Mesa and north of Highway 506?	Sections 3.4.2, 4.3.3
Which areas will be open for oil and gas exploration and development?	Section 2.3.2
Consider safety with regard to military operations and oil and gas operations.	Section 2.3.2
Oil and gas exploration and development should be permitted on McGregor Range.	Section 2.3.2
Orogrande Basin has the potential for oil and gas reserves, but is under explored.	Section 2.3.2
Clarification is needed on whether PL 106-65 provides for oil and gas leasing, exploration, and development.	Section 2.2.2
Ensure that concerns regarding the effects on customs and culture are analyzed.	Sections 3.16.3, 4.2.12, 4.2.17

TABLE 1-1
ISSUES IDENTIFIED THROUGH THE SCOPING PROCESS

Issue	Section(s) of RMPA/EIS Where Issue Is Addressed
What are the secondary effects on cultural resources resulting from changes in land use?	Section 4.2.12
How will traditional Apache land use in the area be documented and addressed?	Section 3.16.1.1
What is BLM doing to inventory cultural resources in the area?	Section 3.16.1.1
Information from Fort Bliss (i.e., habitat studies) should be included in the RMPA/EIS.	Sections 3.10, 3.11, 3.12
Include information in the EIS that specifies military responsibilities for cleanup of unexploded ordnance on McGregor Range.	Section 4.2.18

- Identify water use needs and any impacts on existing water resources
- Identify the subbasins for McGregor Range and use as the organizational framework for water resources evaluation
- Maintain or improve vegetation conditions
- Identify any infestations of noxious/invasive weeds and provide for management alternatives to address existing and potential problems
- Provide for the harvesting of vegetation products if compatible
- Provide for the protection and management of the sensitive, state-listed, and Federally listed plant and animal species
- Provide for livestock grazing where compatible
- Provide for the protection and management of wildlife habitat
- Identify any impacts of predator management
- Provide for hunting, in concert with biological cycles when possible
- Provide for recreational uses where compatible
- Identify any impacts of OHV use
- Maintain or enhance visual quality
- Provide for the management of cultural and paleontological resources
- Continue to provide for the management of the Culp Canyon WSA under Interim Management Policy procedures pending Congressional determination

1.3.3 Step 3 – Data and Information Collection

The majority of data and information was extracted and used from existing data on file at the BLM Las Cruces Field Office and U.S. Army, Fort Bliss. Other data were obtained from relevant sources to update and/or supplement the BLM's data (see References). Data included published and unpublished reports, maps, and digital format (GIS). Resource concerns addressed include the following:

- Lands and access
- Geology and minerals
- Soils
- Water resources
- Air quality
- Noise
- Vegetation
- Wildlife
- Hazardous materials/unexploded ordnance
- Special status species
- Rangeland
- Cultural resources
- Paleontological resources
- Recreation
- Visual resources
- Special management areas
- Social and economic conditions

1.3.4 Step 4 – Management Situation Analysis

The purpose of the Management Situation Analysis (MSA) is to conduct a deliberate assessment of the current situation as it relates to the management of natural resources on McGregor Range. The documentation is compiled in response to the planning issues. The MSA provides a profile of the resource concerns on McGregor Range, description of the existing management situation as it pertains to management of the resources, and analysis of opportunities to modify the existing management situation. The MSA and accompanying resource maps are on file at the BLM Las Cruces Field Office.

1.3.5 Step 5 – Formulation of Alternatives

Four alternatives, including an option to take no action, were examined. The alternatives were developed to (1) respond to issues identified through scoping, (2) explore alternatives to the existing management situation, (3) comply with the FLPMA requirement of managing for sustained yield and multiple use on public land, and (4) comply with BLM's Land Use Planning Handbook (Handbook H-1601-1).

The No-Action Alternative reflects the existing management situation and assumes that existing management would continue. Compliance with laws and regulations, and existing management plans, policies, and decisions would continue as described in the 1990 RMPA; however, the requirements of PL 106-65 would not be met. PL 106-65 directs the Secretary of the Interior, after consultation with the Secretary of the military department concerned, to develop a plan for management of the area during the withdrawal period. The plan must be consistent with applicable law and military use, and include provisions as necessary for proper management and protection of the resources and values.

Three alternatives were developed that are modifications of existing management. The alternatives address existing legislative and regulatory requirements at a programmatic level, and/or place constraints if resource values are determined to be sufficiently high or protections are justified as in the public interest. Alternative A balances resource use and conservation on McGregor Range; Alternative B emphasizes resource use and production; and Alternative C emphasizes resource conservation, protection, and enhancement of natural and cultural resources. The three alternatives were developed to be consistent with the military use of McGregor Range. The selection of Alternatives A, B, or C would allow subsequent site-specific decisions and analyses to be tiered from the RMPA/EIS, thereby expediting future compliance with NEPA and other legal and regulatory requirements. The existing management situation and alternatives are described further in Chapter 2.

1.3.6 Step 6 – Estimation of Effects of Alternatives

The beneficial and adverse impacts resulting from each of the alternatives were identified and evaluated. Mitigation measures also were considered in evaluating impacts. The baseline information that describes the existing environment in the Planning Area is included in Chapter 3, and environmental consequences are discussed in Chapter 4.

1.3.7 Step 7 – Selection of the Preferred Alternative

Based on the information generated in Step 6, the BLM Las Cruces Field Manager identified and recommended to the BLM State Director Alternative A as the preferred alternative. The Draft RMPA/EIS then was completed and distributed to the public for review and comment. BLM presently is at this step of the process.

1.3.8 Step 8 – Selection of the Plan Amendment

Based on the results of the public review of and comment on this Draft RMPA/EIS, the BLM Las Cruces Field Manager will recommend and the BLM State Director will select an alternative or a combination of the alternatives to be the Proposed RMPA and publish it along with the Final EIS. A final decision will be made after a

60-day Governor's consistency review and a 30-day protest period. A Record of Decision and approved RMPA then will be published.

1.3.9 Step 9 – Monitoring and Evaluation

Once the RMPA is approved, it will provide the management strategies to implement decisions and the terms and conditions for guiding and controlling future management actions on withdrawn public land within McGregor Range.

Over time, BLM will monitor and evaluate management strategies, actions, resource conditions, and trends to determine the effectiveness of the RMPA and to ensure that implementation of the RMPA is achieving the desired results. Information accumulated through monitoring will be used to assess management strategies and determine whether to maintain current management direction, change implementation, or alter decisions. This allows BLM to adjust, or adapt, management strategies to meet the goals for desired future ecological conditions. The RMPA will be kept current through minor maintenance, amendments, or revisions as demands on resources change, as the resources change, or as new information is acquired.

1.4 RELATIONSHIP TO BLM POLICIES, PLANS, AND PROGRAMS

The RMP and its amendments are intended to provide broad management direction and to work in concert with any existing activity plans such as the Strategy for OHV Use, New Mexico Road Policy, and New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management. Site-specific projects may require additional public participation and NEPA processes.

Since the White Sands RMP was completed in 1986, two RMPAs have addressed resource management on McGregor Range. The 1990 RMPA for McGregor Range (BLM 1990a) will be revised and replaced by this RMPA. The areas that comprise the Black Grama Grassland ACEC, located within McGregor Range, will continue to be managed and maintained through a cooperative agreement among the BLM, U.S. Army, and New Mexico State University. An RMPA/EIS was completed in 2004 to address Federal fluid mineral leasing and development in Sierra and Otero Counties. However, this document did not address the Federal mineral estate underlying McGregor Range; therefore, previous decisions regarding fluid minerals on McGregor Range were carried forward, unchanged.

WSAs are designated by the Federal government and, if formally added to the National Wilderness Preservation System, would be managed in accordance with the Wilderness Management Policy (BLM 1981). The Culp Canyon WSA and a small portion of the Sacramento Escarpment WSA are included within McGregor Range, but have not received formal Congressional designation. These areas currently are managed under Interim Management Policy and Guidelines for Lands Under Wilderness Review (BLM 1995), which allows some uses and requires protection of wilderness values. The WSAs are used by the U.S. Army for military training, but off-road vehicle travel or military weapons firing are not permitted.

The New Mexico BLM State Office completed the statewide Fire and Fuels Management Plan Amendment and EA , which includes McGregor Range. The statewide plan amends fire management in all New Mexico BLM RMPs or RMPAs.

The BLM and U.S. Army, Fort Bliss manage McGregor Range jointly under a memorandum of understanding established in 1990. In response to the U.S. Army's environmental responsibilities, Fort Bliss has developed several guidance documents including the McGregor Range Land Withdrawal Renewal Legislative EIS (1999) and Fort Bliss Mission and Master Plan Programmatic EIS (2000), and Integrated Natural Resource Management Plan (2001).

1.5 ORGANIZATION OF THIS RMPA/EIS

This RMPA/EIS is organized as follows:

Chapter 1 presents (1) a statement of the purpose and need for the current resource planning for McGregor Range; (2) background and location information about McGregor Range; (3) explanation of BLM's nine-step planning process, including discussion of the criteria established for the current planning effort and issues to be addressed during the process; and (4) brief description of the relationship of this planning action to the BLM and U.S. Army's policies, plans, and programs.

Chapter 2 is presented in two primary sections: (1) a description of the management guidance and actions that will continue regardless of the alternative plan amendment selected and implemented and (2) a summary of the reasonable range of alternative management strategies developed and analyzed during the planning process.

Chapter 3 is a description of the existing condition of the human environment (i.e., physical, biological, social, and economic resources and uses) that could be affected by the alternatives considered.

Chapter 4 is a description of the direct, indirect, and cumulative effects on the quality of the environment that could result from implementing each alternative, and measures that could be implemented to mitigate such effects.

Chapter 5 is a description of the consultation and coordination activities that have taken place during the process, including efforts to involve the public in the preparation of this RMPA/EIS. Chapter 5 also includes a list of the RMPA/EIS preparers.

Other information included for reference is a glossary, list of the references used in preparing the RMPA/EIS, and an index. Appendices include Appendix A – Acts of Authority and Mandates for the BLM, Appendix B – General Management Guidance, Noxious Weed Management Plan, Appendix C – Ecological Sites, Appendix D – Special Status Species, Appendix E – Areas Identified for Fuels Reduction and Woodlands Management, and Appendix F – Best Management Practices

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2.0

Alternatives

2.0 ALTERNATIVES

2.1 INTRODUCTION

This chapter is presented in two primary sections: (1) description of the management guidance that will continue regardless of the alternative plan amendment selected and implemented, and (2) explanation of the alternative plan amendments examined during this planning process.

As mentioned previously, the status of lands within McGregor Range is a mix of land owned-in-fee by the U.S. Department of the Army (U.S. Army) (approximately 10 percent), land administered by the U.S Department of Agriculture through the U.S. Forest Service (Forest Service) (approximately 3 percent), and the majority is public land administered by the U.S. Department of the Interior (USDI) through the Bureau of Land Management (BLM) (approximately 87 percent). Although the public land has been withdrawn from the public domain for military purposes, Public Law (PL) 106-65 requires that BLM prepare a plan for managing the public land and its resources within McGregor Range. Further, PL 106-65 requires that management decisions resulting from the planning effort must be compatible with and not impair the military uses for which McGregor Range was withdrawn. Therefore, the continuing management guidance and alternatives described in this chapter pertain only to the BLM-administered public land (and Federal mineral estate) within McGregor Range. However, to ensure compatibility of BLM's resource and land management with military uses of the public land, BLM invited the U.S. Army, Fort Bliss, to participate and coordinate throughout the planning process. Upon completion of the Resource Management Plan Amendment and Environmental Impact Statement (RMPA/EIS), the BLM and Army will enter into a memorandum of understanding (MOU) to establish the basic principles and responsibilities of the BLM and U.S. Army for implementation of the RMPA.

2.2 CONTINUING MANAGEMENT GUIDANCE

This section describes the objectives, basic management policy, and program direction that will continue to apply regardless of the alternative plan selected, unless otherwise stated. The continuing management guidance includes the laws, Executive Orders (EOs), regulations, USDI manuals, and BLM manuals and instruction memoranda that (1) provide BLM with the authority to manage resources on public land and (2) provide overall guidance for BLM's management of public land. Also described are any of the existing management decisions that would be carried forward from the 1990 RMPA.

The information in the section is provided by resource or use, and is based on more detailed discussions in Section 3.0, Existing Management Situation, of the McGregor Range Management Situation Analysis (MSA) on file at the BLM Las Cruces Field Office. Federal mandates and guidance applicable to all resources are provided in Appendix A. Table 2-1 summarizes applicable major laws, regulations, and policies that apply to resources in the Planning Area.

Many of the resource objectives described below refer to "maximizing public land health," which means that decisions on actions taken will consider options that are in concert with the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (referred to as the Standards and Guides) (BLM 2001b). The Standards and Guides were incorporated by plan amendment into the eight existing Resource Management Plans (RMPs) for BLM-administered public land in New Mexico.

TABLE 2-1
APPLICABLE MAJOR LAWS, REGULATIONS, AND POLICIES

Law/ Regulation	Applies to
American Indian Religious Freedom Act of 1978; 42 U.S.C. 1996	American Indian religious places and access
Antiquities Act of 1906	Cultural resources
Archaeological and Historic Preservation Act of 1974	Cultural resources
Archeological Resources Protection Act of 1979; 16 U.S.C. 470	Archaeological resources
Bald Eagle Protection Act of 1940	Bald and Golden Eagle
Carlson Foley Act	Noxious weeds
Clean Air Act of 1970, as amended 1990; 42 U.S.C. 7401 *et seq.*	Air quality
Clean Water Act , as amended; 33 U.S.C. 1252 *et seq.*	Surface water quality
Comprehensive Environmental Response, Compensation and Liability Act of 1986	Hazardous substances reporting and cleanup
Curation of Federally owned and Administered Archaeological Collections, 36 CFR 79	Cultural resources
Endangered Species Act; 16 U.S.C. 1531 *et seq.*, as amended	Threatened and endangered species
Federal Cave Resource Protection Act of 1988	Paleontological resources
Federal Coal Leasing Amendments Act of 1976; 30 U.S.C. 201	Federal coal leasing
Federal Land Policy and Management Act of 1976; 43 U.S.C. 1700, *et seq.*	Federal lands, special management areas
Federal Noxious Weed Act of 1974, as amended	Noxious weeds
Federal Oil and Gas Royalty Management Act of 1982	Mineral leasing
Federal Onshore Oil and Gas Leasing Reform Act of 1987, 43 U.S.C. 31(a)	Mineral leasing
Federal Water Pollution Control Act, as amended 1972	Watersheds
General Mining Law of 1972; 30 U.S.C. 22-54	Mining
Geothermal Steam Act of 1970	Energy and minerals
Historic Sites Act of 1935	Cultural resources
Migratory Bird Treaty Act of 1989	Migratory birds
Mineral Leasing Act of 1920	Mineral leasing
Mineral Leasing Act of 1947; 30 U.S.C. 351, 352, 354, 359	Mineral leasing
Mining and Mineral Policy Act of 1970; 30 U.S.C. 219	Mining
Mining Law of 1872, as amended	Mining claims
National Environmental Policy Act of 1969 and implementing regulations 40 CFR 1500-1508	Federal undertakings
National Historic Preservation Act of 1966; 16 U.S.C. 470	Archaeological and historic properties
National Materials and Minerals Policy Research Development Act of 1980	Mineral resources
Native American Grave Protection and Repatriation Act of 1990	Cultural resources
Research and Development Act of 1980	Energy and minerals
Reservoir Salvage Act of 1960	Cultural resources
Resource Conservation and Recovery Act of 1986, as amended	Hazardous and solid waste
Soil and Water Conservation Act of 1977	Soils
Surface Mining Control and Reclamation Act of 1977; 30 U.S.C. 1201 *et seq.*	Surface mining

Law/ Regulation	Applies to
Water Quality Act of 1987	Riparian area, wetlands
Watershed Protection and Flood Control Act of 1954	Watersheds
White House Memorandum on Government-to-Government Relations with Native America Tribal Governments of 1994	Cultural resources
Executive Order 11593	Preservation of the cultural environment
Executive Order 11988	Floodplain management
Executive Order 11990	Wetlands, riparian zones
Executive Order 12898	Environmental justice
Executive Order 13007	Sacred sites
Executive Order 13112	Invasive species
Executive Order 13186	Protection of migratory birds

The standards of land health are expressions of physical and biological condition or degree of function required for healthy and sustainable lands, and define the minimum resource conditions that must be achieved (BLM 2001b). The process for assessing the condition of resources, and evaluating attainment of standards and conformance with the guidelines is ongoing. The BLM Las Cruces Field Office is currently evaluating portions of McGregor Range to determine if the standards are being met.

Since there are joint management responsibilities for the BLM and U.S. Army, military management direction is addressed in the following sections where clarification is needed.

2.2.1 Lands, Realty, and Access

The objective of the lands and realty program on the withdrawn public land on McGregor Range is to consider those uses that are compatible with the McGregor Range withdrawal (PL 106-65), and if compatible, make selected withdrawn land and it resources on McGregor Range available for the public to meet National, regional, and local needs while maximizing public land health.

The objective for transportation and access on the withdrawn public land is to provide guidance to all users of the withdrawn public land regarding allowable uses and how those uses will be managed, and clarify the areas available for use and the procedures that will be followed to access McGregor Range.

PL 106-65 established the withdrawal of McGregor Range for military use for a period of 25 years and limited uses by withdrawing land from use under the mining laws, mineral leasing, and geothermal leasing laws. The law further segregates public land on McGregor Range from the disposal authority of the Federal Land Policy and Management Act (FLPMA); therefore, disposal of withdrawn public land through sales, recreation and public purposes, and exchange is not allowed. PL 106-65 also specifies that the Secretary of the Interior may issue any lease, easement, right-of-way, or other authorization with respect to the nonmilitary use of such land only with the concurrence of the Secretary of the Army. The law also allows the Secretary of the Army to close withdrawn lands, roads, or trails from public use to ensure public safety, military operations, or national security. Closures are to be limited to the minimum of areas and periods that the Secretary determines necessary. Additionally, this law specifies that appropriate warning be posted and that appropriate steps are taken to notify the public.

Regarding rights-of-way and utility corridors, BLM's policy, described in BLM Manual H-1601-1, Land Use Planning Handbook, states that avoidance areas and exclusion areas should be identified for the Planning Area, consistent with natural resource goals and objectives (BLM 2000a).

Specific management direction associated with access is intended to protect unique resources or values where BLM determines it necessary. Generally, this pertains to controlling surface use by limiting off-highway vehicle (OHV) use. OHV use and restrictions are described in Section 2.2.14, Recreation.

The 1990 RMPA included a decision regarding terms and conditions for short-term leases and permits whereby BLM would process nonmilitary applications and issue the short-term lease or permit on a case-by-case basis with the concurrence of the military. This will be carried forward as general management guidance applicable to all alternatives (see Section 2.3.2.2).

2.2.2 Mineral and Energy Resources

The objective of the minerals program on withdrawn public land on McGregor Range is to identify areas that are suitable for access to and use of locatable, leasable, and salable minerals on McGregor Range consistent with the laws that govern these activities while minimizing environmental damage and maximizing public land health.

When public land is withdrawn from the public domain and designated for a particular use, such as for the military, the lands are restricted and protected from all forms of appropriation under general land laws. FLPMA provides for public uses such as mining; however, under PL 106-65, McGregor Range is closed to minerals leasing and entry for mining of locatable minerals. PL 106-65 requires that, every five years, BLM compile expressions of interest and information related to leasable and locatable mineral activities on lands adjacent to McGregor Range and evaluate whether the decision to close is still appropriate. If at that point the information supports a change in the decision and, if Fort Bliss concurs with BLM, opening of all or portions of McGregor Range to leasable and locatable minerals would be considered and it would be determined whether an amendment would be needed. . Under PL 106-65, McGregor Range would continue to be closed to the general public for extraction of salable minerals; however, the law specifically allows for the U.S. Army, Fort Bliss, to extract the material for construction needs on McGregor Range.

2.2.3 Soils

The objective of the soils program on the withdrawn public land is to maintain healthy and productive soils that support and maintain appropriate vegetative cover and maximize public land health. Policy and guidance for the management of soil resources associated with lands administered by BLM are included in Manual Sections 7000 and 7100.

2.2.4 Water Resources

The objective of the water resources program on the withdrawn public land is to maintain adequate supply of water appropriate for the livestock management program and for wildlife habitat management. The objective of the watershed program is to provide for corrective actions where needed and maintain and enhance those resources in a manner that sustains other natural resources and allows for appropriate land uses while maximizing public land health.

The BLM, under FLPMA, must comply with all applicable pollution control laws, including State and Federal water standards. Federal regulations regarding water resources are implemented and administered in New Mexico at the State level. The New Mexico Water Quality Control Commission (NMWQCC) develops and enforces groundwater protection regulations and groundwater standards in the State, and regulates discharges onto or below the ground surface to protect all groundwater in New Mexico that has an existing concentration of 10,000 milligrams per liter (mg/L) or less of total dissolved solids.

The New Mexico Office of the State Engineer (State Engineer) administers water rights for the use of ground and surface water in New Mexico. To ensure orderly development of groundwater resources within the State, the State Engineer designates groundwater basins as declared or undeclared. Within a declared groundwater basin, an application to appropriate groundwater must be filed with and approved by the State Engineer. In an undeclared groundwater basin, water is not appropriated and wells may be drilled without approval from the State Engineer. Surface water rights in New Mexico are based upon the principle of beneficial use and first appropriation, meaning that water rights are ranked in priority according to first beneficial use. All unappropriated water belongs to the public. The State Engineer assists the court in the testing of surface water priority and use and administers water conservation programs. No adjudication of surface water rights on McGregor Range or on streams originating on the Range has been conducted and none is anticipated.

The law controlling the quality of surface water primarily has been based upon the Clean Water Act (CWA). In New Mexico, water quality authority is vested in the NMWQCC and primarily administered by the various units of the New Mexico Environment Department (NMED). Surface water quality standards have been set by NMED and approved by the U.S. Environmental Protection Agency (EPA).

Sections 401, 402, and 404 of the CWA require that certain discharges or changes in channel geometry of the receiving waters require Federal or State permits if such discharges are to "waters of the U.S." A playa that straddles the New Mexico and Texas state line could be an "interstate water" as defined by the CWA, and further guidance can be found from the U.S. Army Corps of Engineers (COE) (COE and EOA 2002).

Water pollution from point sources is the focus of National Pollutant Discharge Elimination System (NPDES) laws and regulations. NPDES permits are required for all discharges from pollutant sources to "waters of the U.S." Implementation of the program is achieved through an industry-specific permit and pollutant limitation system. The only industrial use currently considered for McGregor Range would be fluid minerals exploration and development, which is governed under NPDES only if synthetic drilling fluids are used (and would only apply if, in the future, BLM and the U.S. Army agree to open McGregor Range to minerals development, consistent with PL 106-65).

The NPDES program also covers nonpoint-source pollution through storm water release. Under Phase II of the NPDES storm-water program, disturbance of areas greater than one acre generates the need to obtain a storm-water discharge NPDES permit. Construction activity can be waived under certain combination of low rainfall and low potential for soil erosion.

The State of New Mexico water quality control strategy is described in the draft Statewide Water Quality Management Plan. Although the State does not have primacy to administer its own program, NMED and other agencies do consult with EPA, Region VI on certain pending NPDES permits. Under Section 401 of the CWA, the State can deny certification of Federal permits for a variety of water quality impacts.

Section 303(d) of the CWA stipulates the treatment of surface waters that, despite meeting the effluent limitations prescribed by the NPDES program, still are not meeting water-quality standards. Such waters appear on a list, formerly published biennially, by the individual states and a total maximum daily load and other water-quality reports are required to be written that spell out a procedure for bringing the water body under the appropriate standard. The NMED is the regulating authority for Section 303(d) list. The current 303(d) list does not list any of the streams originating on or passing through McGregor Range. Further, the New Mexico law stipulates that surface-water-quality standards do not extend to nonperennial reaches of streams. This appears to exclude all of the streams on McGregor Range from any future total maximum daily loads.

In addition to point sources, the CWA also extends to nonpoint-source pollution under Section 319 and each State is obligated to provide a nonpoint-source pollution assessment and management plan. In January 2000, EPA approved the State's nonpoint-source assessment and management plan. The plan assigns regulatory authority to NMED and details consultation requirements under the 401 certification and 404 dredge and fill (see below) permitting process. Compliance with the plan is judged by a series of runoff control methodologies termed best management practices (BMPs). These BMPs can range over a variety of engineering, public outreach, and administrative controls, and cited examples are similar to BMPs used in other states and tribes.

Specific State agencies have consultation duties to support NMED, including New Mexico Energy, Minerals, and Natural Resources Department (NMNRD) for mining, Forestry Division for timber and silviculture industries, New Mexico State Highway and Transportation Department for road building and so forth. In addition, the various State soil and water conservation districts are authorized under State law to work on a voluntary basis to control nonpoint-source pollution within their district boundaries. The Otero Soil and Water Conservation District has authority in the McGregor Range area.

Federal agencies also are called out as nonpoint-source control partners and BLM is charged with a significant responsibility. Nonpoint-source control on public land is cited by the State plan as to be accomplished by the RMP/EIS process. For this reason, the McGregor Range RMPA is the primary document for BLM compliance with the New Mexico nonpoint-source management plan.

The need for the prevention of nonpoint-source pollution as a consequence of livestock management is discussed in a number of places in the Standards and Guides. Specifically, the document describes an MOU confirming that BLM is the agency designate by the State of New Mexico for the prevention of nonpoint-source pollution on and from public land (NMWQCC 1998). Nonpoint-source pollution is seen as most optimally controlled by a spectrum of BMPs.

The State Nonpoint-Source Management Plan (NMWQCC 1998) also calls out the U.S. Army's responsibilities under Section 404 of the CWA. This section controls the dredging and filling of channels conveying "waters of the U.S." and includes almost any modifications to surface water bodies in the state. The Secretary of the Army, delegated to the Chief of Engineers of the COE, has the authority to issue dredge and fill permits under Section 404. As indicated above, the Regulatory Branch of the COE, Albuquerque District has interpreted the SWANCC memorandum to exclude all arroyos on McGregor Range from "waters of the U.S." This would suggest that there is no need to obtain dredge and fill permits for any activities on McGregor Range.

In addition to the CWA, operation of McGregor Range could involve the Safe Drinking Water Act (SDWA) because of the pipeline conveying water to Orogrande. The water suppliers have the primary responsibility for maintaining appropriate levels of water quality for their users but any impacts on the source of these supplies or to the pipeline may involve parts of the SDWA.

The 1990 RMPA included a decision whereby BLM would provide water for wildlife year-round in each pasture. Because this decision is not a land use plan level decision, it will be carried forward as general management guidance applicable to all alternatives (see Section 2.3.2).

2.2.5 Air Quality

All BLM actions and use authorizations must comply with all applicable local, State, tribal, and Federal air quality law, statues, regulations, standards, and implementation plans. Prior to implementation, all BLM-initiated or authorized activities within nonattainment and maintenance areas must undergo a review and determination (when applicable) to determine conformity with the National Ambient Air Quality Standards, per 40 CFR part 93.150 et seq. If the standards are being met, the area is designated as attainment, and if the status of attainment has not been verified through data collection, the area is unclassified. For permitting purposes, an unclassified area is treated as an attainment area. McGregor Range is located in Otero County, which is currently classified as in attainment with all State and Federal air quality regulations.

2.2.6 Vegetation

The objective of vegetation management within the grazing area on the withdrawn public land is to maintain a desirable vegetation resource that maximizes public land health, and supports the livestock grazing program, wildlife habitat, and special status species needs.

The objective of the noxious weed program on the withdrawn public land is to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause while maximizing public land health.

BLM has entered into an MOU and a cooperative agreement with Otero County for the control of noxious weeds. Pursuant to the MOU, BLM participates in a Voluntary Noxious Plant Control Interagency Working Group and has agreed to complete an environmental assessment for weed control actions. Under the agreement, the Otero County Soil and Water Conservation District will store and apply herbicide to control noxious weeds and provide the BLM Las Cruces Field Office with a Pesticide Application Record indicating dates, locations, and amounts of herbicides applied.

2.2.7 Wildlife

The objective of the wildlife habitat management program on the withdrawn public land is to restore, maintain, and enhance habitat conditions to ensure optimum populations and a natural abundance and diversity of wildlife resources; to conserve rare, vulnerable, and representative habitats, plant communities, and ecosystems; and maximize public land health.

According to FLPMA and USDI policy (43 CRF Part 24.4), BLM is responsible for managing habitat on public land. Resident fish and wildlife species (with the exception of migratory birds and endangered species) are managed by the state agencies with responsibility over them. As such, the BLM works closely with the New Mexico Department of Game and Fish (NMDGF) to develop and implement habitat management plans and to mitigate or avoid the impacts of BLM actions. BLM is the lead agency in coordination of all recommendations to NMDGF concerning wildlife population management.

The wildlife program at McGregor Range is coordinated with NMDGF and Fort Bliss through a series of MOUs. Fort Bliss is responsible for wildlife habitat management on U.S. Army fee-owned land. The emphasis of habitat management under the Fort Bliss Integrated Natural Resource Management Plan (INRMP) (U.S. Army 2001a) is to conserve biodiversity. According to the INRMP, habitat management actions are to be integrated with an ecosystem approach and not strictly on a basis for individual species. The INRMP identifies various vegetation treatments that may be used for habitat management. Measures to reduce impacts of military activities on wildlife also are identified and include restrictions on activities in the vicinity of wildlife waters, use of vegetation for camouflage, and off-road vehicular traffic. Unique and sensitive areas designated for special protection in the INRMP include arroyos, cliffs, black grama grasslands, Otero Mesa, and the Hueco Mountains.

BLM is responsible for authorizing animal damage control (ADC) activities on McGregor Range and for monitoring predator populations. BLM provides Fort Bliss the opportunity to review and approve draft district ADC plans to ensure consistency with military missions, safety, and security requirements (BLM 1990b). BLM submits requests for predator control to the New Mexico Wildlife Service upon request by grazing unit contractors when livestock losses due to predation occur.

The decision from the 1990 RMPA to develop an MOU among BLM, Fort Bliss, and NMDGF to coordinate the management of wildlife will be carried forward as general management guidance applicable to all resources.

2.2.8 Special Status Species

The objective of the special status species program is to preserve, enhance, and maintain habitat conditions for the conservation of special status species on the withdrawn public land while maximizing public land health.

The Endangered Species Act (ESA), as amended, requires special protection and management for Federally listed threatened and endangered species, or species proposed to be listed as threatened and endangered. BLM also is responsible for managing habitat for a large number of sensitive species that are not protected under the ESA (e.g., BLM Sensitive Species, State Threatened and Endangered Species) in order to use a broad range of management options to protect species and avoid the need to institute Federal listing as threatened or endangered species.

At the State level, the Forestry Division of the Energy, Minerals, and Natural Resources Department administers the New Mexico Endangered Plant Species Act (9-10-10 NMSA 1978), and the NMDGF administers the Wildlife Conservation Act (17-2 NMSA 1978) (BLM 1999). Plant species listed as endangered or threatened under the New Mexico Endangered Plant Species Act are protected from collection without a permit and the New Mexico Rare Plant Technical Council maintains a current list of New Mexico's rare plants. Similarly, the Wildlife Conservation Act requires the listing of any species or subspecies of "wildlife indigenous to the state" as endangered or threatened on the basis of investigations and other scientific and commercial data, and after consultation with wildlife agencies in other states, Federal agencies, local and Tribal governments, and other interested persons and organizations. BLM's policy regarding State-listed species, as outlined in the BLM Manual 6840, is to work cooperatively with the State agency to conserve them (BLM 1999).

2.2.9 Livestock Grazing

The objective of the grazing management program on the withdrawn public land is to maximize public land health. The grazing program should be self-sustaining through management of the desired plant communities and competitive bidding of grazing units at public auction. This will be accomplished by continuing to commit resources toward administering an effective grazing program.

Public Land Order (PLO) No. 1470 of August 21, 1957 withdrew public land on McGregor Range for use by the U.S. Army as a missile testing range. Section 4(e) of the PLO allowed grazing on McGregor Range if compatible with military uses. An MOU between the U.S. Army and USDI was established in 1966 that provided for co-use grazing on McGregor Range (BLM 1990b). In accordance with the Military Lands Withdrawal Act of 1986, grazing is to be continued on McGregor Range and managed pursuant to Section 608 of FLPMA until Congress determines otherwise (BLM 1990a). The right to use forage within grazing units on McGregor Range is determined via competitive bidding at public auction, under provisions of the Federal Material Disposal Act of 1947, as amended.

Additional policy for the management of livestock grazing is included in the Standards and Guides. The standards describe conditions needed for healthy sustainable public rangelands and relate to all uses of public land. They provide the measure of resource quality and functioning condition upon which the public land health will be assessed. In order to measure the effectiveness of each standard, a set of measurable indicators and associated criteria have been identified. Livestock grazing guidelines are practices, methods, or techniques determined to be appropriate to ensure that standards can be met or that significant progress can be made toward meeting those standards. Guidelines are tools such as grazing systems, vegetative treatments, or improvement projects that help managers and permittees achieve standards.

The livestock grazing guidelines were designed to improve public land health and are to be implemented at the watershed, allotment, or pasture level if it is determined that the standards are not being met, and livestock grazing is the cause. Guidelines for activities other than livestock grazing are not mandated through regulation; however, they may be developed should the need arise (BLM 2001b). If it is determined that the standards are not being met as a result of another activity (i.e., road placement, recreation, etc), program leads would determine appropriate actions to ensure that standards can be met or that significant progress can be made toward meeting those standards. The grazing units on McGregor Range currently are being evaluated to determine if the standards are being met. The livestock grazing guidelines or other appropriate actions will be implemented if it is determined that the standards are not being met on McGregor Range.

BLM Manual 4180, Rangeland Health Standards, provides the policies, minimum requirements, and roles and responsibilities for developing and implementing land health standards established in land use plans. BLM Handbook H-4180-1, Rangeland Health Standards, gives specific direction for implementing the policies listed in the 4180 Manual and provides direction for implementing the BLM's Healthy Rangelands Initiative. The handbook also provides direction for developing and amending standards and guidelines, and provides guidance for conducting assessments and evaluations as well as guidelines for reporting.

The 1990 RMPA limited livestock grazing to the existing 14 grazing units, and limited grazing to cattle and no more than three horses per pasture. The decision to limit grazing to the existing grazing units would be carried forward under Alternatives A and B. The decision to limit grazing to cattle and no more than three horses per pasture would be carried forward under Alternative A.

2.2.10 Fire Management

The objective of the fire management program is to allow fire to resume a natural ecological role on public land, reduce fire suppression costs, reduce acres damaged by severe wildfires, increase public safety from wildfires, and maximize public land health. Short-term objectives include reducing hazardous fuels through various treatment methods (mechanical, chemical, and prescribed fire) and reintroduce fire into the ecosystem.

The Federal Wildland Fire Management Policy establishes the guiding principles and policy statements for all Federal wildland fire management activities to ensure consistency, coordination, and integration of wildland fire management programs and related activities throughout the Federal government. The policy outlines provisions for 17 topic areas including safety, ecosystem sustainability, protection priorities, urban interface issues, and suppression (National Interagency Fire Center 2001). EPA has developed an Interim Air Quality Policy on Wildland and Prescribed Fires. This policy provides guidance on mitigating air pollution impacts caused by wildland fires and ways for land managers to coordinate fire activities, minimize air pollutant emissions, manage smoke from prescribed fires, and mitigate unavoidable impacts on the public (EPA 1998).

BLM policy, described in H-1625-1, Resource Management Planning—Fire Management provides guidance for identifying resource management objectives that consider and take advantage of natural processes, particularly fire (BLM 1988a). BLM policy, described in H-8550-1, Interim Management Policy and Guidelines for Lands Under Wilderness Review, requires that lands under wilderness review be managed so as not to impair their suitability for preservation as wilderness (BLM 1995).

Fire management must be consistent with BLM laws, regulations, and policy and must be integrated into other plans to meet the intent of the 2001 update of the National Fire Plan, which states that "fire management planning, preparedness, prevention, suppression, fire use, restoration and rehabilitation, monitoring, research, and education will be conducted on an interagency basis with the involvement of cooperators and partners." The BLM New Mexico State Office completed a statewide Fire and Fuels Management Plan Amendment that amends nine resource management plans in eight BLM field offices in New Mexico and Texas, including the Las Cruces Field Office.

The Fire and Fuels Management Plan Amendment establishes objectives for fire and fuels management, delineates fire management units and fire management categories, identifies broad vegetation treatments, identifies general restrictions on fire management practices, and determines the criteria for changing fire management units.

2.2.11 Hazardous Materials

There are numerous Federal laws, regulations, and guidance documents governing the management of hazardous materials and wastes (see Table 2-1).

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and the Superfund Amendments and Reauthorization Act of 1986 provide for liability, risk assessment, compensation, emergency response, and cleanup for hazardous substances. The Emergency Planning and Community Right-to-Know Act of 1986 requires facilities that use hazardous substances to prepare annual chemical inventory reports if certain chemicals over threshold quantities are used or stored at a facility and to submit the report to local emergency planning communities. EO 12856 requires Federal facilities to comply with the Emergency Planning an Community Right-to-Know Act of 1986. The Resource Conservation and Recovery Act of 1976 regulates the storage, transportation, treatment, and disposal of hazardous waste. The Federal Facility Compliance Act of 1992 provides for civil penalties against Federal agencies for noncompliance with RCRA, and directs the EPA to promulgate regulations identifying when military munitions become a hazardous waste subject to RCRA regulations.

2.2.12 Cultural Resources

The objectives of the cultural resource program on the withdrawn public land are to preserve and protect significant cultural resources and ensure that they are available for appropriate uses by present and future generations. Imminent threats from natural or human-caused deterioration, or potential conflicts with other resource uses, are to be reduced by identifying priority geographic areas for new field inventory, based upon a probability for unrecorded significant resources.

Approximately 87 percent of McGregor Range is withdrawn public land managed by the BLM. In managing this land, BLM must comply with numerous Federal laws, implementing regulations, and other policy documents regarding cultural resources and historic preservation (see Table 2-1).

BLM also has issued policy in the form of manuals, including Manual 8100, Cultural Resource Management; Manual 8110, Identifying Cultural Resources; Manual 8120, Protecting Cultural Resources; Manual 8130, Utilizing Cultural Resources for Public Benefit; and Manual 8160, Native American Coordination and Consultation. The BLM State Office also has issued supplemental Manual H-8100-1, Procedures for Performing Cultural Resource Fieldwork on Public Lands in the Area of New Mexico State BLM Responsibilities. In addition, specific policy for addressing cultural resources in resource management plans has been issued as Information Bulletin 2002-101. The bulletin defines policy for identifying cultural resources, defining management goals, allocating uses of cultural resources, and defining management actions to support the plan goals.

BLM applies a "rule of reason" in considering how potential effects of BLM actions on cultural resources will be considered on non-Federal lands (BLM Manual 8100.07 and nationwide programmatic agreement). Under this policy, BLM inventories, evaluates, and assesses potential effects on cultural resources on non-public land to the extent that effects stem from BLM decisions. These situations may arise for linear projects that cross lands of various jurisdictions, including public land, or issuance of permits to drill on "split estate" lands. Any such applications are cognizant of the New Mexico Cultural Properties Act, which addresses cultural resources on State Trust Land.

The 1990 RMPA decision to fence the Escondida Site (also known as Escondida Ruin or Escondida Pueblo) would be carried forward under Alternatives A and C. The 1990 RMPA decision to close the Escondida Site to OHV use would be carried forward under Alternatives B and C.

2.2.13 Paleontological Resources

The objective of the paleontological resource program on the withdrawn public land is to manage and protect the paleontological resources found on public land.

The BLM State Office has a Cooperative Agreement with the New Mexico Museum of Natural History and Science and the New Mexico Museum of Natural History Foundation to ensure the care, protection, and storage of paleontological resources collected from public land in New Mexico. Fossil resources encountered on the public land will be provided to paleontologists from New Mexico Museum of Natural History and Science for professional evaluation, care, and management. New Mexico Museum of Natural History and Science holds a statewide permit with the BLM for the collection of vertebrate fossils from public land. The vertebrate paleontologists at the museum collect and study these fossils. In addition, any vertebrate fossil discovered on public land during the course of a permitted activity or reported by a citizen would be collected and curated at the New Mexico Museum of Natural History and Science.

BLM has developed objectives for paleontological resources (BLM Manual H-8270-1, General Procedural Guidance for Paleontological Resource Management) to provide protection of the resources. It is the policy of BLM to manage paleontological resources for these values and to mitigate adverse impacts on them. Adherence to the guidelines as set forth in the BLM's General Procedural Guidance for Paleontological Resource Management (BLM Manual H-8270-1) is expected to reduce or eliminate adverse impacts on paleontological resources from surface-disturbing activities.

2.2.14 Recreation

The primary objective of the recreation program on the withdrawn public land is to ensure continued availability of outdoor recreation opportunities while maintaining or improving public land health.

PL 106-65 allows closure of roads, trails, or other portions of withdrawn lands that the Secretary of the Army determines necessary for military purposes and public safety.

EO 11644, Use of Off-Road Vehicles on the Public Lands (as amended by EO 11989), was signed by President Nixon in 1972 to ensure that the use of off-road (off-highway) vehicles on public land would be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands. This EO required Federal agencies to designate specific areas where OHV use would be permitted and areas where OHV use would be prohibited.

OHV use on public land managed under the USDI is regulated by 43 CFR 8340. These regulations establish the criteria for designating public land as open, limited, or closed to OHV use and for establishing controls governing the use and operation of OHVs in such areas. BLM Manual 8340 provides policy guidance for managing OHV use on public land consistent with 43 CFR 8340. The objectives of OHV management are to provide for public needs and demands, public safety, and natural resource protection, while minimizing user conflicts. In addition, Instruction Memorandum NM 2002-077 provides statewide guidance for transportation and OHV management.

BLM Handbook H-8550-1, Interim Management Policy for Lands Under Wilderness Review, provides policy direction with respect to motorized and mechanized vehicles in WSAs (BLM 1995). According to part I.B.11 of this handbook, motor vehicles and mechanical transport may be allowed off existing roads and trails for emergencies and search and rescue operations; official purposes by the BLM and other agencies for protecting human life, safety and property; and to build or maintain authorized structures.

The 1990 RMPA included a decision to limit OHV use to existing roads and trails on McGregor Range, except that the Escondida Site would be closed to OHV. These decisions will be carried forward under Alternative B.

2.2.15 Visual Resources

The visual character of the landscape is managed to protect the quality of the scenic values. Unique or scenic attractions adjoining heavily traveled highways will be managed on a priority basis. The BLM Visual Resource Management (VRM) system is the basic tool for the inventory, planning, and management activities for visual resources in BLM's Decision Area. As described in BLM's handbook for managing visual resources, H-8410-1, Visual Resources Inventory, the VRM classes prescribe the level of modifications allowable under the VRM system. For each class, the primary character of the landscape should be retained regardless of the degree of modification.

BLM's policy, described in BLM Manual Section 8400, Visual Resource Management, explains that the BLM has a basic stewardship responsibility to identify and protect visual values on all BLM-managed land (BLM 1984). To accomplish this, BLM prepares and maintains an inventory of visual values on all public land, develops visual management objectives (classes) through the RMP process that conform with the resource allocation decisions made in the RMP, and incorporates visual design considerations into all surface-disturbing projects. In addition, BLM's policy specifies that VRM is a management responsibility shared by all resource programs.

Instruction Memorandum No. 98-164 provides additional guidance on the management of visual resources. The memorandum states that when VRM is addressed during the RMP process, and VRM management decisions are made, the implementation of those decisions is mandated just as they are for any other resource allocation decisions.

The 1990 RMPA identified VRM classes for McGregor Range. These classes will be carried forward regardless of the alternative selected.

2.2.16 Special Management Areas

The Wilderness Act (PL 88-577) of 1964 provides for the establishment of wilderness areas (designated by Congress), which are administered for the use and enjoyment of the public in such a manner as will leave them unimpaired for future use and enjoyment as wilderness. FLPMA authorized the BLM to classify and recommend suitable BLM land for wilderness designation. FLPMA also requires BLM to maintain a continuing inventory of public land and its resources, including wilderness values.

There are two Wilderness Study Areas (WSAs) in the Planning Area: the Culp Canyon WSA and a portion of the Sacramento Escarpment WSA. These WSAs were designated in the November 1980 Wilderness Study Areas Decisions, but the Sacramento Escarpment WSA was inadvertently left out of the associated RMPA. WSAs are managed according to the BLM policy, described in H-8550-1, Interim Management Policy and Guidelines for Lands Under Wilderness Review, which requires that lands under wilderness review be managed so as not to impair their suitability for preservation as wilderness (BLM 1995). WSAs are managed under this policy until the areas are either designated as Wilderness or released from wilderness study by Congress. The objective of the wilderness program on the withdrawn public land on McGregor Range is to manage the Culp Canyon WSA and the portion of the Sacramento Escarpment WSA within McGregor Range in compliance with the BLM Interim Management Policy.

Federal regulations for BLM's planning, programming, and budgeting (BLM Manual 1613 and 43 CFR 1610.7-2), require that areas having potential for area of critical environmental concern (ACEC) designation and protection management be identified and considered throughout the planning process. ACECs must meet relevance and importance criteria and require special management to either protect the area and prevent irreparable damage to resources or natural systems, or protect life and promote safety in areas where natural hazards exist. There is one ACEC in the Planning Area, the Black Grama Grassland ACEC, which was designated in the 1990 RMPA. This ACEC would be carried forward under the No-Action Alternative and Alternatives A and B.

2.3 ALTERNATIVES

NEPA and the BLM's land use planning regulations (43 CFR 1600) require BLM to "rigorously explore and objectively evaluate all reasonable alternatives." Further, the BLM Land Use Planning Handbook, H-1601-1, requires that "different levels or degrees of [resource] protection and use should be evaluated in different alternatives to determine which combination best meets the present and future needs of the American people and best assures the long-term health of the land and its resources."

BLM complied with these requirements by engaging the planning team of specialists in interdisciplinary analysis to (1) establish a broad objective (or desired future condition) for each resource or resource use; and then, (2) develop a reasonable range of alternative management strategies to meet the objectives. In developing the objectives and alternatives, the team had to fulfill the following:

- Conform with the guidance provided in the planning criteria established early in the RMPA/EIS process (refer to Section 1.3.2).
- Consider the issues derived from the comments provided by other agencies and the public during and subsequent to scoping (refer to Section 1.3.1).
- Understand the existing condition of the resources and resources uses on McGregor Range.
- Understand the current management requirements and direction (of both the BLM and U.S. Army).

Considering these, BLM examined the opportunities to modify the existing management situation. Also, there were alternative management strategies considered, but for various reasons these were eliminated from further consideration.

As a result, aside from taking no action, which the BLM is required to address and analyze, three alternatives were developed and evaluated.

2.3.1 Alternatives Considered but Eliminated from Further Analysis

As mentioned previously, some of the management strategies considered initially were eliminated from further consideration in this RMPA/EIS. These include an ACEC for black-tailed prairie dogs, ACECs to protect important cultural resources, and certain right-of-way designations. These are described below.

BLM considered designating an area as an ACEC for black-tailed prairie dogs. BLM policy (BLM Manual 1613 and 43 CFR 1610.7-2) requires that before an ACEC can be designated, it must meet certain criteria to determine its relevance and importance and require special management. Through the evaluation, BLM determined that, although the proposed black-tailed prairie dog ACEC met the relevance and importance criteria, the area does not require special management on McGregor Range. Special management is not required because, although potential factors may be limiting the population of black-tailed prairie dogs on McGregor Range (the most likely factor being disease), these factors are outside the control of BLM. BLM is currently engaged in a number of conservation planning activities that encompass the entire range of the black-tailed prairie dog, including supporting plague-related research for this species. Research and monitoring of the prairie dog population on McGregor Range has been conducted annually by Fort Bliss and periodically by BLM, and could be conducted without establishment of an ACEC. As a result, the management strategy was eliminated from further consideration.

Likewise, several ACECs for cultural resources were proposed. However, only those cultural resources on public land that met the relevance and importance criteria and required special management were carried forward in the alternatives.

Initially, four utility corridors (two north-south and two east-west) were considered. However, because of potential incompatibility of the corridors with activities occurring in the military training areas, BLM determined that it would be prudent to combine segments of the corridors in a manner to provide two north-south corridors (one trending east-west at one point) and one east-west corridor. Therefore, the utility corridors initially proposed were refined and resulted in three utility corridors proposed for designation. Consideration of the other segments of utility corridors was eliminated from further consideration.

2.3.2 Plan Alternatives Considered

The four alternatives examined in this RMPA/EIS are as follows:

- No-Action Alternative, which represents the continuation of existing management plans, policies, and decisions as established in the 1990 RMPA for McGregor Range
- Alternative A, which represents a balance of resource use and conservation
- Alternative B, which emphasizes resource use and production
- Alternative C, which represents an emphasis of resource conservation, protection, and enhancement of natural and cultural resources

Each alternative is described generally below. Table 2-2, located at the end of this chapter, provides a comprehensive summary of the plan alternatives listing the resource categories and concerns. Maps 2-1, 2-2, 2-3, and 2-4 illustrate the management objectives for each alternative.

2.3.2.1 No-Action Alternative

If no action were taken, existing decisions and policy would remain in effect (Map 2-1). BLM would continue to manage the withdrawn public land on McGregor Range for rights-of-way and short-term leases in accordance with the 1990 RMPA. The elements of the No-Action Alternative are described in general below. The categories listed below correspond to those in Table 2-2.

- Lands and Realty: Nonmilitary applications permits would be processed by BLM on a case-by-case basis with the concurrence of the military. In the 1990 RMPA, no areas were identified that should be avoided by or excluded from establishing rights-of-way. Also, no utility corridors were identified or designated on McGregor Range; however, several linear utility rights-of-way exist on McGregor Range.
- Mineral and Energy Resources: McGregor Range would continue to be withdrawn from all forms of appropriation under the public land laws, including mining and mineral leasing laws. BLM would review locatable and leasable minerals every 5 years, and, if appropriate, publish opening notices, and authorize mining and mineral leasing after U.S. Army concurrence.
- Soil Resources: No specific management decisions were identified in the 1990 RMPA. Soil resources would continue to be managed according to current management guidance (Section 2.2).
- Water and Watershed Management: Water for wildlife would be provided year-round in each pasture. BLM would continue to implement the water resource projects identified in the 1990 RMPA: construct new pipelines; replace existing pipelines; and construct wells, water troughs, water storage tanks, and dirt tanks. BLM would develop and implement watershed management plans for the Grapevine Watershed Area, El Paso Canyon Area, and Cockleburr Watershed Management Area; and develop a watershed monitoring plan for McGregor Range in cooperation with Fort Bliss.
- Vegetation: BLM would maintain the Black Grama Grassland ACEC. The vegetation sale areas encompassing 25,858[1] acres would be maintained, with plant removal limited to cacti, yucca and ornamental species that are not sensitive or which are not known to provide hunting, nesting, or perching sites for falcons or other raptor species. BLM would conduct monitoring studies on the withdrawn public land to determine watershed and rangeland conditions.
- Fire Management: BLM would prepare burn plans for prescribed burn projects on 220,800 acres on Otero Mesa and portions of the Sacramento Mountain foothills, and conduct prescribed burns within this area
- Livestock Grazing: The livestock grazing season would continue to be October 1 to June 30, subject to the discretion of the BLM Field Manager, and summer grazing would be authorized on some units. The right to use livestock forage in a given pasture would be determined by competitive bidding at public auction. No more than 50 percent of key forage species would be utilized each year by all grazing animals. As necessary, BLM would redistribute livestock by rotating access to water supplies, provided that restricted supplies are not needed by wildlife. Monitoring would be conducted on an annual basis with the objective of determining the authorized grazing use and documenting the resulting vegetation trends. BLM would maintain and repair all grazing-related facilities, except that lessees would be responsible for maintenance of boundary fences and gates during the grazing season.

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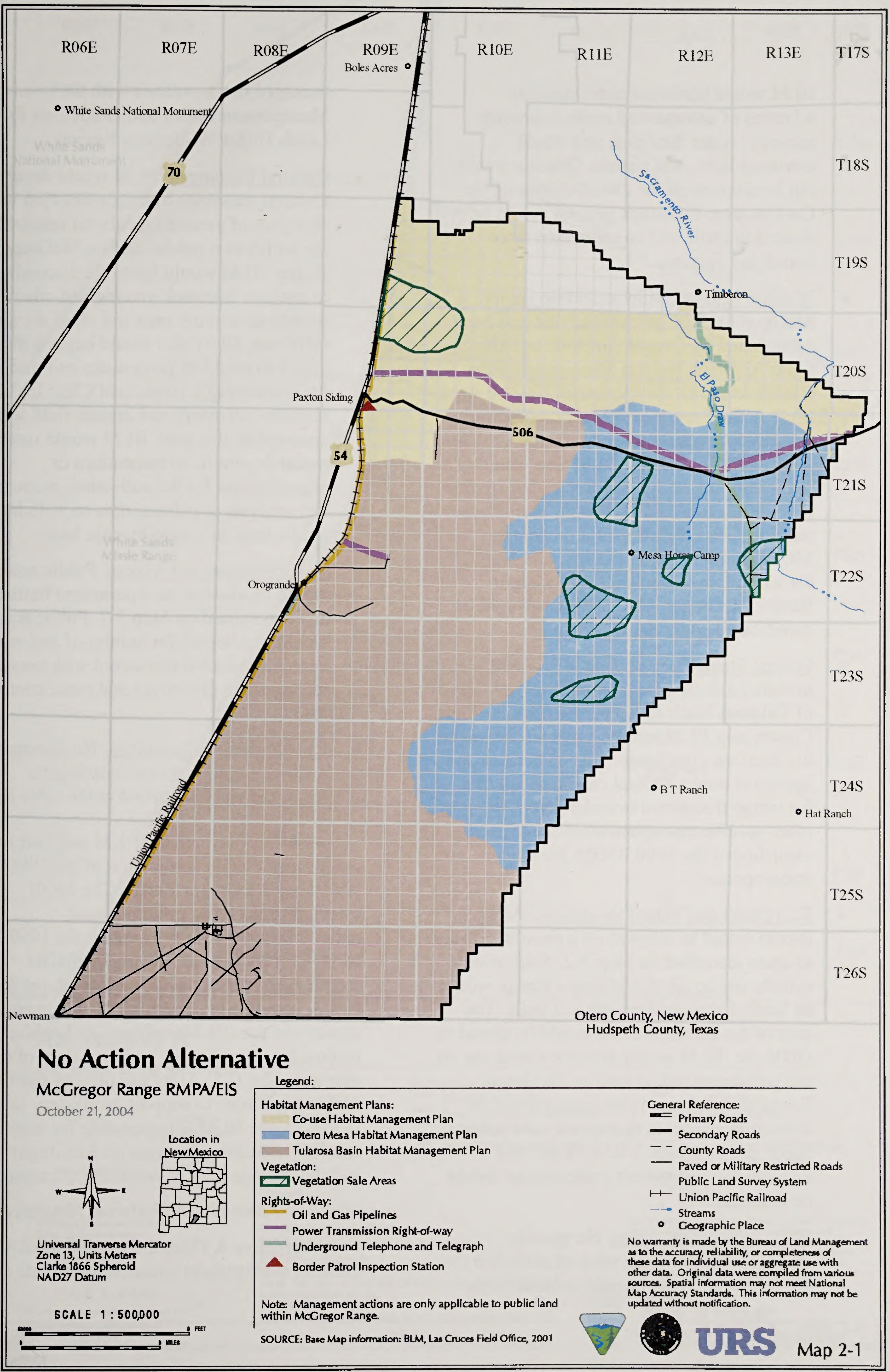
[1] The acreage noted for the vegetative sale area reflects the best available geographic information system (GIS) data maintained by the BLM.



No Action Alternative

McGregor Range RMPA/EIS

October 21, 2004

R06E
R07E
R08E
R09E
R10E
R11E
R12E
R13E
T17S
T18S
T19S
T20S
T21S
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T23S
T24S
T25S
T26S
Boles Acres
White Sands National Monument
70
Sacramento River
Timberon
El Paso Draw
Paxton Siding
506
54
Mesa Horse Camp
Orogrande
B T Ranch
Hat Ranch
Union Pacific Railroad
Newman
Otero County, New Mexico
Hudspeth County, Texas
Location in New Mexico
N
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Universal Tranverse Mercator
Zone 13, Units Meters
Clarke 1866 Spheroid
NAD27 Datum
SCALE 1 : 500,000
FEET
MILES
Legend:
Habitat Management Plans:
Co-use Habitat Management Plan
Otero Mesa Habitat Management Plan
Tularosa Basin Habitat Management Plan
Vegetation:
Vegetation Sale Areas
Rights-of-Way:
Oil and Gas Pipelines
Power Transmission Right-of-way
Underground Telephone and Telegraph
Border Patrol Inspection Station
Note: Management actions are only applicable to public land within McGregor Range.
SOURCE: Base Map information: BLM, Las Cruces Field Office, 2001
General Reference:
Primary Roads
Secondary Roads
County Roads
Paved or Military Restricted Roads
Public Land Survey System
Union Pacific Railroad
Streams
Geographic Place
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. Spatial information may not meet National Map Accuracy Standards. This information may not be updated without notification.
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Map 2-1

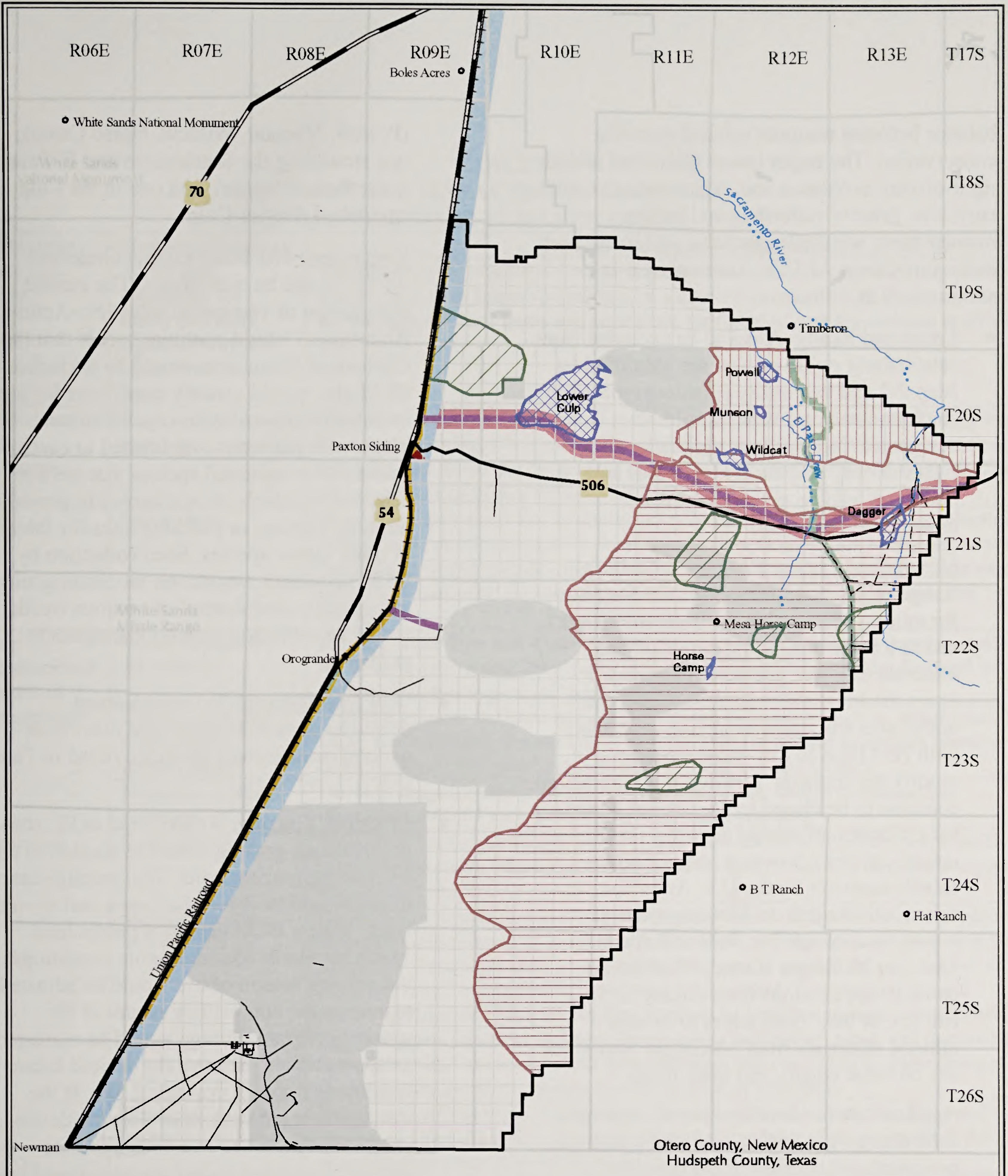
BLM would construct approximately 47 miles of unimproved roads to provide access to water facilities, and would construct three new corrals. Grazing would not be allowed on the 244,000 acres of the Co-Use area. Livestock grazing would be limited to cattle and no more than three horses per pasture.

- Wildlife Habitat: BLM would inventory McGregor Range antelope habitat and create a combined McGregor Antelope and Otero Mesa Antelope Habitat Management Plan (HMP), evaluate the McGregor Co-Use Area HMP in the Sacramento Mountain foothills and basin habitats, and combine the Co-Use Area and Basin HMPs. BLM also would implement inventory and monitoring studies for wildlife and wildlife habitat, and allocate wildlife forage. BLM would prepare an MOU among BLM, Fort Bliss, and NMDGF for wildlife management on McGregor Range. McGregor ADC activities would be coordinated under the DC Plan.
- Special Status Species: The 1990 RMPA included a decision to nominate all colonies of Tularosa black-tailed prairie dogs in Otero County as a BLM sensitive species; however, the decision is no longer needed because the species is now a Federal candidate species for listing threatened or endangered. No other specific management decisions were identified in the 1990 RMPA for special status species.
- Recreation and Visual Resources: Public access would be allowed on a permitted basis to areas identified on Map 3-2. Recreational vehicle use on all of McGregor Range would be limited to existing roads and trails. The area of the Escondida Site would be closed to OHV use. BLM would monitor visitor use on the withdrawn public land on McGregor Range to determine if the management of recreation resources is responsive to public needs and demands. VRM classes and associated management prescriptions would be maintained.
- Wilderness Study Areas: No specific management decisions were identified in the 1990 RMPA. WSAs would continue to be managed in accordance with the Interim Management Policy and Guidelines for Lands Under Wilderness Review.
- Cultural Resources: BLM would develop a Cultural Resource Management Plan with the objective of protecting cultural resources on the withdrawn public land on McGregor Range. BLM would fence the Escondida Site to exclude livestock grazing and other surface-disturbing uses and close the area to OHV use. BLM also would begin a plan of action to establish procedures and priorities for conducting a 10-percent Class II cultural resource inventory and initiate field work to accomplish this goal. BLM would issue research permits to institutions or organizations for the collection, recovery, and analysis of cultural data on withdrawn public land on a case-by-case basis.
- Transportation and Access: Public access would be allowed on a permitted basis to areas identified on Map 3-2. Public access would be allowed for hunting if and when a hunt is conducted consistent with resource management objectives and other controlled uses.
- Paleontological Resources: No management decisions specific to paleontological resources were identified in the 1990 RMPA.

An MOU between the BLM and Fort Bliss was prepared upon completion of the 1990 RMPA for McGregor Range. The MOU established the basic principles and responsibilities for implementing the 1990 RMPA for McGregor Range. The MOU established general operating procedures for NEPA compliance, comment on documents, access and use (BLM, military, and public), income from public use, and inventory of real property. The U.S. Army has priority use of McGregor Range to support its military mission. However, the BLM is responsible for nonmilitary uses of renewable resources on McGregor Range and the management of nonmilitary caused fires.

2.3.2.2 Alternative A (Preferred Alternative)

Alternative A (Map 2-2) would modify the existing management situation to provide a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Boles Acres
White Sands National Monument
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Sacramento River
Timberon
Powell
Lower Culp
Munson
Wildcat
El Paso Draw
Paxton Siding
506
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Dagger
Mesa Horse Camp
Horse Camp
Orogrande
B T Ranch
Hat Ranch
Union Pacific Railroad
Newman
Otero County, New Mexico
Hudspeth County, Texas

Alternative A

McGregor Range RMPA/EIS

October 21, 2004

Location in New Mexico

Universal Tranverse Mercator
Zone 13, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

SCALE 1 : 500,000

Legend:

Right-of-way Exclusions:
- ▨ Exclusion Areas

Right-of-way Corridors:
- ▨ Corridor 1
- ▨ Corridor 2

Watersheds:
- ▨ Watersheds

Vegetation Sale:
- ▨ Vegetative Sale Area

Habitat Management Plans:
- ▨ Sacramento Mountain Foothills HMP
- ▨ Grassland HMP

Existing Right-of-way:
- — Oil and Gas Pipelines
- — Power Transmission Right-of-way
- — Underground Telephone and Telegraph
- ▲ Border Patrol Inspection Station

General Reference:
- — Primary Roads
- — Secondary Roads
- - - County Roads
- — Paved or Military Restricted Roads
- Public Land Survey System
- ┼ Union Pacific Railroad
- - - Streams
- ○ Geographic Place

Note: Management actions are only applicable to public land within McGregor Range.

SOURCE: Base Map information: BLM, Las Cruces Field Office, 2001

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Map 2-2

balance between resource use and resource conservation. The major issues addressed include right-of-way avoidance and exclusion areas and corridors, priority watershed and habitat management, adjusted vegetative sale areas, and cultural resource ACECs. Alternative A is summarized as follows:

- Lands and Realty: Areas to be excluded from establishing rights-of-way are identified on Map 2-2 and two utility corridors (one north-south and one east-west) would be designated. Nonmilitary applications for rights-of-way and short-term leases and permits would be subject to general management guidance.
- Mineral and Energy Resources: McGregor Range would continue to be closed to entry for mining of locatable minerals (hard rock) and to leasing and development of fluid minerals (oil, gas, geothermal). Every 5 years, BLM would evaluate whether the decision is still appropriate and coordinate with Fort Bliss to determine whether to modify the decision. McGregor Range would continue to be closed to the general public for extraction of salable minerals (sand, gravel, caliche); however, extraction of salable minerals by the U.S. Army for construction needs on McGregor Range would be allowed. For State and county roads on McGregor Range, BLM would consider applications from county or State entities, or their contractors to extract mineral materials from McGregor Range for use on these county and State roads.

  Applications for development of wind and solar energy-generating facilities would not be considered because of the potential incompatibility with military uses.
- Soil Resources: Future roads would be located to minimize erosion by avoiding areas of high and moderate erosion, where possible. Where such areas cannot be avoided, mitigation measures to minimize erosion would be implemented.
- Water and Watershed Management: Develop a watershed management plan for six priority areas: four in the El Paso Draw watershed (Powell, Munson, Wildcat, Horse Camp), one straddling the Sacramento and El Paso watersheds (Daggar), and one in the Culp watershed (Lower Culp).
- Vegetation: The Black Grama Grassland ACEC would be maintained. The current designation of vegetation sales (No-Action Alternative) would continue except that the Centennial Range area would be excluded. BLM also would identify conditions for plant removal associated with vegetative sale areas, with plant removal limited to cacti, yucca and ornamental species that are not sensitive or which are not known to provide hunting, nesting, or perching sites for falcons or other raptor species. Seed collection by BLM personnel, vegetation monitoring and assessments, and control of noxious weeds would be subject to general management guidance.
- Fire Management: No management decisions have been identified other than general management guidance noted in Table 2-3.
- Livestock Grazing: As specified in PL 106-65, livestock grazing would be limited to the 14 existing grazing units. The grazing season of use would be determined on a unit-by-unit basis. Where BLM can meet public land health standards (desired future conditions), the grazing season of use would be adjusted to sustain the competitive nature of the grazing program. Forage would be managed as appropriate to achieve the desired future conditions for each ecological site. If the utilization is not consistent with the desired future condition, the livestock numbers would be adjusted and/or grazing would be deferred during the growing season. BLM would be responsible for all grazing-related facilities, and would maintain all wildlife waters year-round. Livestock grazing would continue to be limited to cattle and no more than three horses per pasture.
- Wildlife Habitat: Two HMPs would be developed and implemented under this alternative, one for the Sacramento Mountain foothills and one for the grassland habitat. Each plan would (1) guide the management,

TABLE 2-3
GENERAL MANAGEMENT GUIDANCE APPLICABLE TO ALTERNATIVES A, B, AND C

Resource	Resource Concern	General Management Guidance
Lands and Realty	Terms and conditions for utility corridors, rights-of-way and short-term leases and permits	The BLM would process nonmilitary applications and issue rights-of-way permits and/or short-term leases and permits on a case-by-case basis with the concurrence of the military. General terms and conditions for rights-of-way are outlined in 43 CFR 2801.2.
Minerals and Energy Resources	Review of closure to mineral entry	Every five years, the BLM would re-evaluate the decision to close McGregor Range to entry for mining of locatable minerals and to leasing and development of fluid minerals, and revise the decision as appropriate. This review would occur regularly and would not constitute a plan-level decision.
Soils	Soil erosion	Identify existing roads that currently are contributing to substantial or accelerated erosion and consider mitigation or relocation. Any modification to existing road infrastructure would include soil erosion mitigation. Maintain ground cover as much as possible to minimize erosion, consistent with the New Mexico Standards and Guides.
Water Resources and Watershed Management	Water availability for wildlife	Existing water lines and water points would be maintained so that water is available for wildlife year-round. New water lines and water points would be designed to enhance habitat as specified in habitat management plans.
	Construction of water supply infrastructure	Maintain existing facilities and construct range improvements (e.g., water pipelines, wells, water troughs, storage tanks, and dirt tanks) as needed to achieve resource objectives and consistent with meeting the Standards and Guides.
	Nonpoint source pollution	Develop nonpoint-source control guidance for roads, stream crossings, and disturbances over 1 acre using best management practices.
Vegetation	Seed collection	Portions of McGregor Range would be available for BLM to collect seeds for BLM restoration projects. BLM would monitor areas every 3 years to determine impacts from seed collection.
	Monitoring and assessments	Collect and evaluate inventory and monitoring data on a regular basis as needed to determine achievement of Land Health Standards, or progress toward meeting those Standards. Redesign existing monitoring programs to capture the data needed to complete future evaluations to determine achievement of or progress toward achieving standards. New monitoring needs to be sensitive enough and established at the appropriate locations to detect deteriorating "achieving" areas, and improving "non-achieving" areas. Schedule data collection and evaluation to allow changes in the indicators to reflect changes in management of activities.
	Control of noxious weeds	Develop a noxious weed management plan in coordination with Fort Bliss and incorporate Fort Bliss noxious weed surveys as available. (See Appendix B for a more detailed description of the weed management plan.)
Fire Management	Prescribed burns	Consistent with the BLM Statewide fire plan, develop a plan for prescribed burning that would (1) develop criteria that guide when, how (operational details), and under what conditions prescribed burns would be conducted, and include a plan for monitoring success of prescribed burns; and (2) develop burn plans that would support recovery of the special status species.
Livestock Grazing	Construction of range improvements	New range improvements such as wells, water troughs, water storage tanks, fences, cattle guards, corrals, and roads would be constructed to maintain or improve the desired plant community and assist in management of livestock.
	Animal damage control	Continue to coordinate with ADC in accordance with the nationwide MOU between the USDA, Animal and Plant Health Inspection Service (New Mexico ADC) and BLM to meet objectives for livestock grazing.

TABLE 2-3
GENERAL MANAGEMENT GUIDANCE APPLICABLE TO ALTERNATIVES A, B, AND C

Resource	Resource Concern	General Management Guidance
Wildlife Habitat	MOU for wildlife management	Develop an MOU among BLM, Fort Bliss, and NMDGF to coordinate the management of wildlife including control of exotic species (oryx). The MOU would include language to collect hunt data on an annual basis.
	Animal damage control	Use animal-control measures to meet objectives for wildlife habitat.
Special Status Species	Special status species habitats	Identify special status species and their habitats in conjunction with assessments for other actions. Avoid adverse effects on these species and their habitats.
	Survey	Survey for special status species would occur in conjunction with assessments for other actions, if determined to be appropriate based on existing records and literature.
Recreation	Education	Develop an educational program to inform the public about the areas available for recreation opportunities on the withdrawn public land on McGregor Range, terms and conditions, and how to access the areas.
	Camping	Establish camp locations (using global positioning system) that are suitable considering potential need for protection of other resources and military activities.
Visual Resources	Visual resource management classes	All WSAs including the Sacramento Escarpment WSA are managed as VRM Class II.
Cultural Resources	Cultural resource management	BLM would participate in ongoing review and revision of the McGregor Range element of the ICRMP prepared by Fort Bliss. Fort Bliss has lead responsibilities for implementing the plan for military undertakings. BLM would have similar lead responsibilities for managing cultural resources for nonmilitary activities in accordance with the BLM Nationwide Programmatic Agreement and New Mexico Protocol.
	Tribal consultation	BLM and Fort Bliss would coordinate regular consultation, as well as project-specific consultations with tribes to promote a better understanding of tribal concerns about traditional cultural resources on public land and how best to manage them.
	National Register nominations	Nominate the following six sites to the National Register of Historic Places including two historic sites (Don Lee Ranch and Turquoise Railroad Station) and four prehistoric sites (Dos Manos Site, McGregor Site, Pendejo Cave, and Pintada Rock Shelters).
	New Mexico Cultural Resources Information System (NMCRIS) database	BLM would work with State Historic Preservation Officer to incorporate BLM data (surveyed areas and recorded sites) into the NMCRIS database, and update with new information as compiled.
	Use categories	BLM and Fort Bliss cooperatively would assign cultural resources to BLM cultural resource use categories as appropriate, and develop and maintain a resource listing to document use allocations. (This reflects BLM policy defined by Manual 8110.)
	Inventory	BLM and Fort Bliss cooperatively would program and conduct future inventories and other cultural resource studies in response to proposed undertakings. BLM would cooperate with Fort Bliss in designing and implementing a survey plan to increase the sample size in sensitive areas under-represented by prior surveys.
	Monitoring	BLM would cooperate with Fort Bliss in patrolling and monitoring the condition of cultural sites in response to information about damage or deterioration. As necessary, physical protection measures (such as signing, fencing, and erosion control) would be implemented to protect significant resources.
Transportation and Access	Access permits	Continue to coordinate with Fort Bliss to issue access permits for McGregor Range. Include, in the access permit, language stating OHV-use designations and provide a map of designated roads and trails. Enhance access permitting process to include a requirement to review UXO education materials.

TABLE 2-3
GENERAL MANAGEMENT GUIDANCE APPLICABLE TO ALTERNATIVES A, B, AND C

Resource	Resource Concern	General Management Guidance
Paleontology	Protection/ Conservation	Protect and conserve paleontological resources according to BLM Guidelines and MOU with the New Mexico Museum of Natural History and Science that allows the use of expert paleontologists from local institutions.
	Evaluation	Evaluate areas with known paleontological resources or a high potential for fossils that are important for scientific purposes to be sure those areas are adequately evaluated or have appropriate mitigation plans for any proposed actions or undertakings.

monitoring, and evaluation of habitat; (2) identify priority species and their habitats; (3) develop objectives for enhancing and maintaining the priority habitat (based on standard habitat sites, standards for public land health, and the latest range site guidelines); and (4) determine and implement monitoring needed to measure the success of the habitat management. ADC activities and development of an MOU among BLM, Fort Bliss, and the NMDGF to coordinate the management of wildlife would be subject to general management guidance.

- Special Status Species: BLM would cooperate with the U.S. Fish and Wildlife Service (USFWS) on the release of aplomado falcons under Section 10J of the ESA for McGregor Range. If Otero Mesa (including parts of McGregor Range) is identified by USFWS as one of the areas for release of aplomado falcon, the Grassland Habitat HMP would be expanded to address management issues necessary for aplomado falcons, as well as other grassland dependent species. The HMP would encompass suitable habitat on McGregor Range; however, it also may be developed in conjunction with appropriate public land adjacent to McGregor Range.

  This HMP would be developed prior to any releases, unless waived by the BLM State Director, in which case the HMP would be developed subsequent to the release. Special status species surveys would be subject to general management guidance.

- Recreation and Visual Resources: Public access would be allowed on a permitted basis to areas identified in Map 2-2. OHV use would be limited to designated roads and trails, except that the area of the Escondida Site and all ACEC areas would be closed to OHV use. Also, BLM, in coordination with Fort Bliss, would identify areas suitable for recreation opportunities and develop terms and conditions for that use. Education programs to inform the public about areas available for recreation and establishment of camp locations would be subject to general management guidance. Current VRM classes would be maintained.

- Wilderness Study Areas: No specific management decisions were identified. WSAs are managed according to the Interim Management Policy and Guidelines for Lands Under Wilderness Review.

- Cultural Resources: Nominate the Escondida Site to the National Register of Historic Places, designate 220 acres around the site as an ACEC and close to OHV use, except for the existing road that would be designated for limited use through this parcel. Prepare an activity plan to protect the site.

- Transportation and Access: Within five years after this plan amendment is approved and using the roads database developed by the BLM New Mexico State Office (2002), a transportation and access plan would be developed to (1) establish an interagency working group (BLM and Fort Bliss) for road construction and management; (2) refine the roads database; (3) develop road management plan that addresses accessibility on McGregor Range; (4) consider OHV, recreation, natural resources, and public safety; (5) lead to road designations (open, limited, and closed); (6) develop a recreation map showing the roads and trails system and which routes are open, and (7) develop education materials in coordination with Fort Bliss explaining the presence of unexploded ordnance (UXO) on McGregor Range, and instruct on how to recognize UXO, the dangers associated with UXO, and associated safety procedures on how to avoid UXO. Public access would be allowed on a permitted basis to the areas identified on Map 2-2. If the transportation and access plan cannot be developed for the entirety of McGregor Range at one time, then a plan for the area north of US Highway 506 will be developed first and then a plan for the area south of US Highway 506 will be developed.

- Paleontological Resources: No management decisions specific to paleontological resources were identified. Paleontological resources would be subject to the general management guidance.

General management guidance also was developed to address some of the resource concerns identified. This general management guidance is applicable to Alternatives A, B, and C and is summarized in Table 2-2. It should be noted that this guidance does not require land use plan level decisions; rather, it is intended to provide general management guidance for the resources. In addition, the application of the Standards and Guides underlies all management actions and would ensure that actions are consistent with meeting public land standards.

2.3.2.3 Alternative B

Alternative B (Map 2-3) would provide a greater emphasis on resource production and use. The departure that Alternative B makes from Alternative A is summarized by resource concern as follows:

- Lands and Realty: No right-of-way avoidance or exclusion areas would be identified. Two north-south utility corridors and one east-west utility corridor would be established.
- Mineral and Energy Resources: Management decisions would be the same as described under Alternative A, except that applications for development of wind and solar energy resources would be considered if they are consistent with other resource uses.
- Soil Resources: Management would be the same as described under Alternative A.
- Water and Watershed Management: No watershed management plan would be developed and priority areas would not be identified.
- Vegetation: Management would be the same as described under Alternative A, except that the Black Grama Grassland ACEC designation would be eliminated. Vegetative sale areas would be larger under this alternative and would be allowed on all areas east of the Otero Mesa escarpment, except the Black Grama Grassland ACEC (even though it would be eliminated) and Centennial Range. Areas west of the escarpment north of New Mexico Highway 506 also would be available for vegetative sales, except the area encompassing the Class C Bombing Range.Plant removal would be limited to cacti, yucca and ornamental species that are not sensitive or which are not known to provide hunting, nesting, or perching sites for falcons or other raptor species.
- Fire Management: No management decisions have been identified other than the general management guidance noted in Table 2-2.
- Livestock Grazing: Management would be the same as described under Alternative A except that the type of livestock and the number of horses per pasture would be determined based on ecological conditions.
- Wildlife Habitat: Wildlife habitat within the Sacramento Mountain foothills and grassland habitat would be managed without the development of HMPs.
- Special Status Species: Opportunities for release of aplomado falcon on McGregor Range would not be considered.
- Recreation and Visual Resources: Management would be the same as described under Alternative A, except that OHV use would be limited to designated roads and

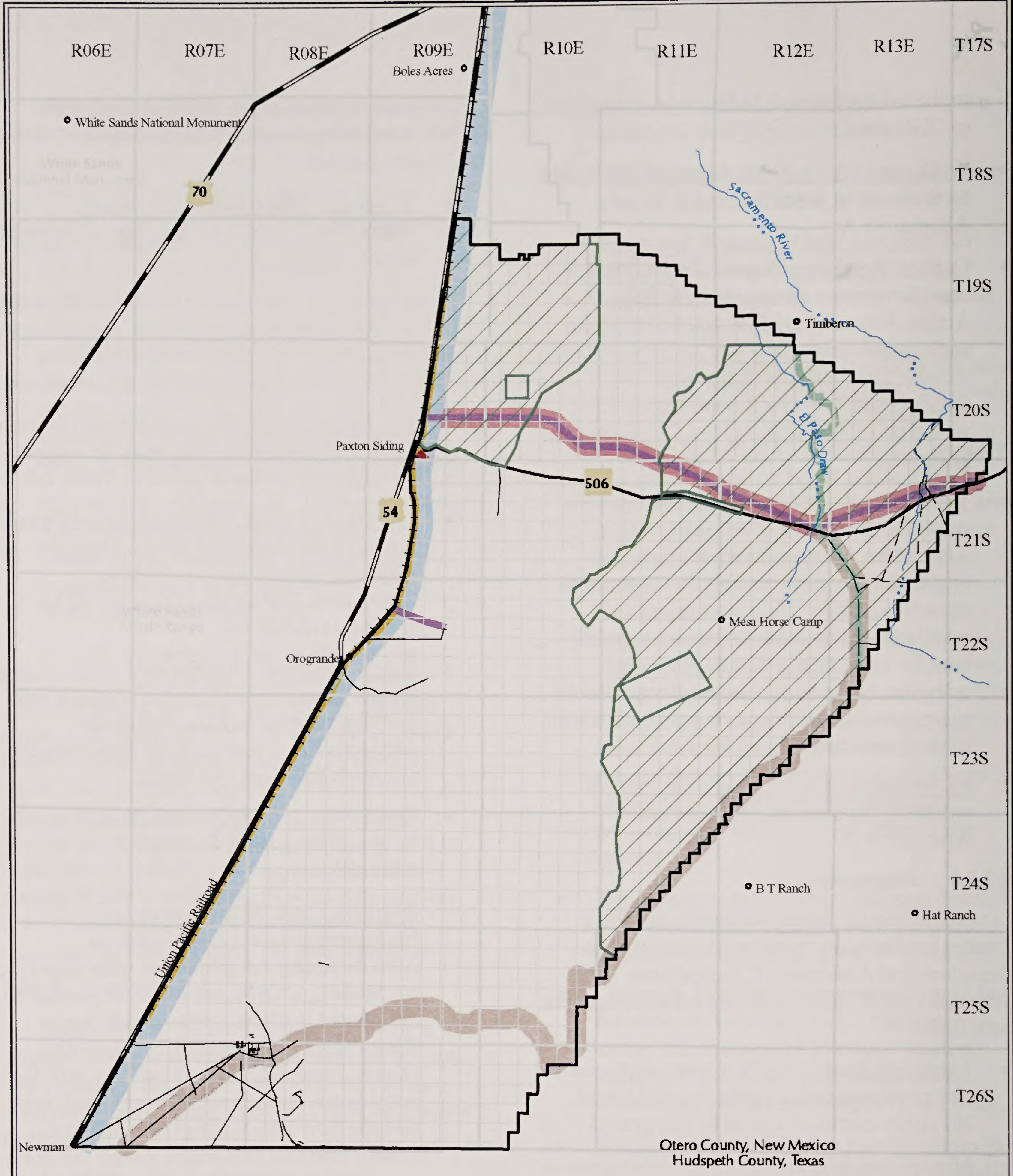
trails and the Escondida Site would be closed to OHV use.

- Wilderness Study Areas: Management would be the same as described under Alternative A.
- Cultural Resources: For the Escondida Site, continue current management strategy (No-Action Alternative) of closure to OHV use and rescind unimplemented decision to fence the site. General cultural resource management and Tribal consultation also would be subject to the general management guidance.
- Transportation and Access: An access plan would be developed as described under Alternative A; however, the plan would emphasize (1) maintaining areas and routes open for existing public access and (2) establishing new roads for access to public land for recreation, research, and other authorized uses on McGregor Range. Public access would be allowed on a permitted basis to the areas identified on Map 2-3
- Paleontological Resources: Management would be the same as described under Alternative A.

2.3.2.4 Alternative C

Alternative C (Map 2-4) would provide a greater emphasis on resource protection. The departure that Alternative C makes from Alternative A is summarized by resource concern as follows:

- Lands and Realty: Right-of-way exclusion and avoidance areas would be established. No utility corridors would be designated.
- Mineral and Energy Resources: Management would be the same as identified under Alternative A, except that applications for development of wind and solar energy resources would be considered consistent with other resource uses and be allowed only in areas other than exclusion areas.
- Soil Resources: Future roads would not be placed in areas where soils are having high erosion hazard or where there are fragile soils. In other areas, placement of roads would require mitigation measures to reduce soil erosion.
- Water and Watershed Management: Management would be the same as described under Alternative A.
- Vegetation: Management would be the same as described under Alternative A with regard to the Black Grama Grassland ACEC; however, vegetative sales would not occur.
- Fire Management: No management decisions have been identified other than the general management guidance noted in Table 2-3.
- Livestock Grazing: Livestock grazing would not occur on McGregor Range; therefore, no livestock grazing season would be determined. Forage utilization would be based on wildlife use.
- Wildlife Habitat: HMPs would be developed for the Sacramento Mountain foothills and grassland habitat as described under Alternative A, except that the area included in each HMP would be larger.
- Special Status Species: Management would be the same as described under Alternative A.
- Recreation and Visual Resources: Management would be the same as describedunder Alternative A with respect to VRM classes. OHV use would be limited to designated roads and trails on McGregor Range and the following areas would be closed: Escondida Site, all ACECs, WSAs, and military impact areas. Designated roads include New Mexico Highway 506 and county roads on McGregor Range. No public recreation would be allowed on McGregor Range; therefore, no public education program or identification of camp locations for recreation would be needed.
- Wilderness Study Areas: Management would be the same as described under Alternative A.
- Cultural Resources: The Escondida Site would be nominated to the National Register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Boles Acres
White Sands National Monument
70
Sacramento River
Timberon
El Paso Draw
Paxton Siding
506
54
Mesa Horse Camp
Orogrande
B T Ranch
Hat Ranch
Union Pacific Railroad
Newman
Otero County, New Mexico
Hudspeth County, Texas

Alternative B

McGregor Range RMPA/EIS

October 21, 2004

Location in New Mexico

Universal Tranverse Mercator
Zone 13, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

SCALE 1 : 500,000

Legend:

Right-of-way Corridors:
- ▬ Corridor 1
- ▬ Corridor 2
- ▬ Corridor 3

Vegetation Sale:
- ▨ Vegetative Sale Area

Existing Right-of-way:
- ▬ Oil and Gas Pipelines
- ▬ Power Transmission Right-of-way
- ▬ Underground Telephone and Telegraph
- ▲ Border Patrol Inspection Station

General Reference:
- ▬ Primary Roads
- ▬ Secondary Roads
- -- County Roads
- — Paved or Military Restricted Roads
- — Public Land Survey System
- ┼ Union Pacific Railroad
- -• Streams
- ○ Geographic Place

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Note: Management actions are only applicable to public land within McGregor Range.

SOURCE: Base Map information: BLM, Las Cruces Field Office, 2001

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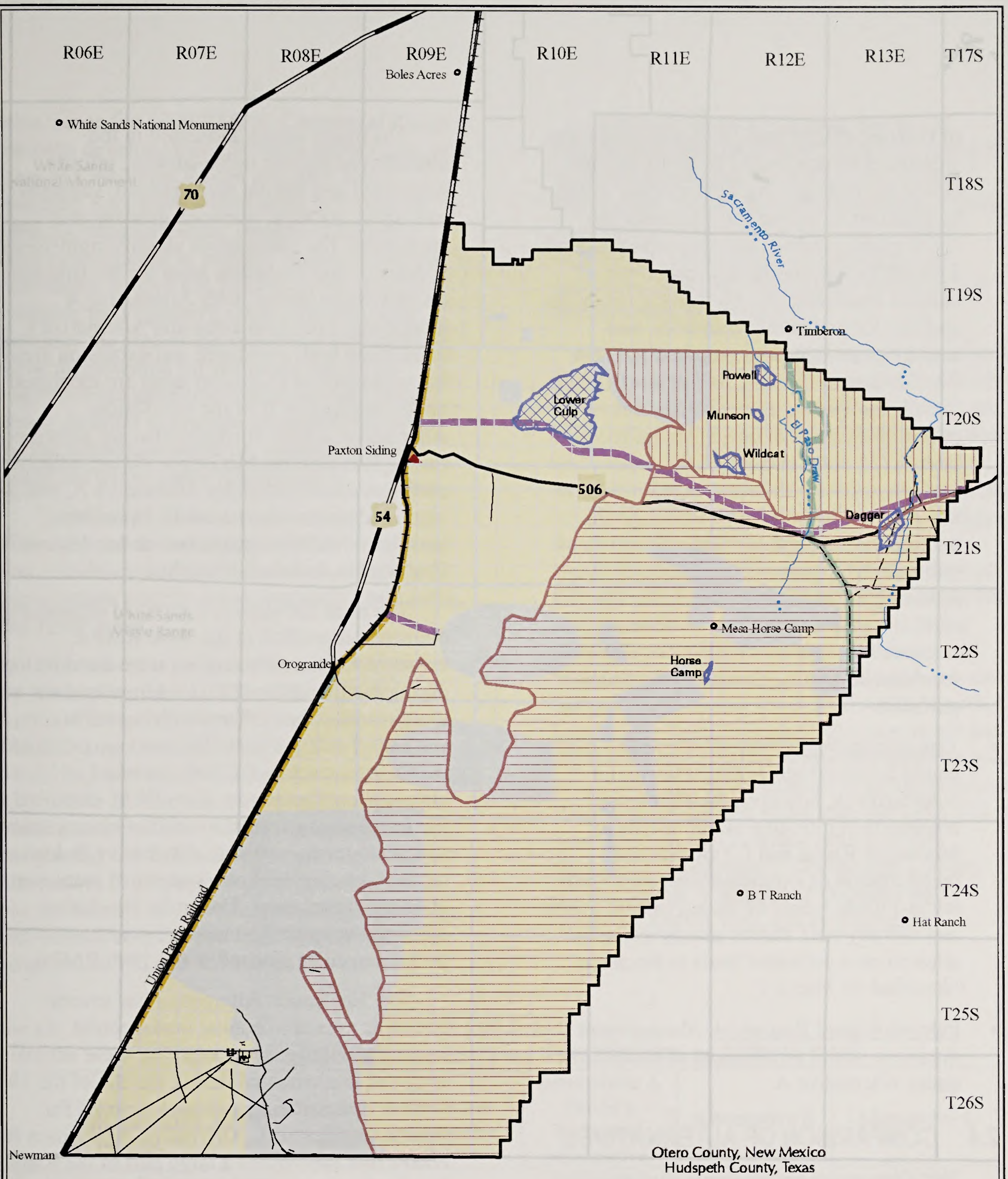
Map 2-3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Union Pacific Railroad
B T Ranch
T24S
Hat Ranch
T25S
T26S
Newman
Otero County, New Mexico
Hudspeth County, Texas

Alternative C

McGregor Range RMPA/EIS

October 21, 2004

Location in New Mexico

Universal Tranverse Mercator
Zone 13, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

SCALE 1 : 500,000

Legend:

Right-of-way Avoidance and Exclusions:
- Exclusion Area
- Avoidance Areas

Watersheds:
- ▨ Watersheds

Habitat Management Plans:
- ▥ Sacramento Mountain Foothills HMP
- ▤ Grassland HMP

Existing Right-of-way:
- Oil and Gas Pipelines
- Power Transmission Right-of-way
- Underground Telephone and Telegraph
- ▲ Border Patrol Inspection Station

Note: Management actions are only applicable to public land within McGregor Range.

SOURCE: Base Map information: BLM, Las Cruces Field Office, 2001

General Reference:
- Primary Roads
- Secondary Roads
- County Roads
- Paved or Military Restricted Roads
- Public Land Survey System
- Union Pacific Railroad
- Streams
- ● Geographic Place

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Map 2-4

of Historic Places, and 220 acres around the site would be designated as an ACEC and closed to OHV use. An activity plan would be prepared to protect the site, fence the entire parcel, and reroute the road as needed. Two ACECs would be designated for cultural resources, one for historic resources and one for prehistoric resources, and activity plans would be prepared for each. The McGregor Historic ACEC would include the Don Lee Ranch (10 acres of public land) and the Turquoise Railroad Station (25 acres of public land). The McGregor Range Prehistoric ACEC would include the McGregor Site (90 acres of public land), Dos Manos Site (200 acres of public land), Pendejo Cave (10 acres of public land), and Pintada Rock Shelters (40 acres of public land). General cultural resource management Tribal consultation would be subject to general management guidance.

- Transportation and Access: An access plan would be developed as described under Alternative A; however, the plan would emphasize (1) limiting public access to McGregor Range and (2) closure and rehabilitation of redundant/unneeded roads (closed roads would be closed to both public and military use). Public access would be allowed on a permitted basis to the areas identified on Map 2-2.
- Paleontological Resources: Management decisions would be the same as described under Alternative A.

2.4 COMPARISON OF ALTERNATIVES

The alternatives are primarily distinguished by the degree of protection or use of the resources, with Alternative B providing the greatest potential for resource use, Alternative C providing the greatest potential for resource protection, and Alternative A providing a balance between the two. Table 2-2 provides the basis for the comparison of alternatives presented below. Table S-1, Summary of Impacts, summarizes the potential impacts estimated for each alternative.

The major issues addressed in the alternatives include rights-of-way, priority watershed and habitat management, vegetative sale areas, ACECs, livestock grazing, and recreation. The alternatives identify right-of-way avoidance and exclusion areas for the first time on McGregor Range, with Alternative A identifying exclusion areas and Alternative C identifying both avoidance and exclusion areas. No avoidance or exclusion areas are identified under Alternative B or the No-Action Alternative. Utility corridors also are identified for the first time on McGregor Range, with two corridors identified under Alternative A, and four identified under Alternative B. No utility corridors would be established under Alternative C or the No-Action Alternative.

The need for various watershed management plans was identified in the 1990 RMPA; however, because these plans were not developed during the life of the plan, BLM realized the need to reprioritize their efforts with regard to watershed management. The strategy presented in Alternatives A and C for watershed management focuses on areas BLM identified on the Range that are most in need of management actions to reduce erosion. Alternative B does not include development of a watershed management plan or priority areas. Under the No-Action Alternative, watershed management plans would be developed as planned in the 1990 RMPA.

The No-Action Alternative has several activities related to habitat management. As with watershed management, many of these activities were not implemented during the life of the 1990 RMPA, necessitating a change in focus for habitat management. Alternative A proposes two HMPs that encompass a large part of the Range: one for the management of the Sacramento Mountain foothills habitat and one for the grassland habitat. Alternative C allows for development of the same HMPs, but they would include larger areas, while Alternative B allows for management of wildlife habitat without development of HMPs.

Sale of vegetative material historically has been allowed on McGregor Range; however, changes in the military mission have necessitated changes in the area designated for vegetative sales. Since the 1990 RMPA, Centennial Range has been developed as a military impact area, and areas of Centennial Range and the Class C Bombing Range are within areas designed in 1990 for vegetative sale. Because vegetative sales cannot occur in military impact areas, the Alternative A does not identify these areas as available for vegetative sales. Alternative B increases the size of the vegetative sale areas to allow the potential for increased use of the vegetative resource (excluding military impact areas). In order to provide increased protection for the vegetation resource, vegetative sales would not occur under Alternative C.

Table 2-4 provides a summary, by alternative, of the acreage proposed for right-of-way avoidance and exclusion areas, watershed management priority areas, vegetative sale areas, and HMP areas.

BLM also has proposed several changes in the management of ACECs. Under the No-Action Alternative, there is one ACEC—the Black Grama Grassland ACEC. This ACEC would be maintained under all alternatives except Alternative B, where it would be eliminated. In addition, Alternatives A and C propose designating the Escondida Site as an ACEC, and Alternative C proposes two additional ACECs, one for historic and one for prehistoric cultural resources. Table 2-5 provides a summary of the proposed ACECs on the Range.

Although there are varying degrees of management proposed under each alternative for livestock grazing and recreation, the most substantive changes in management occur under Alternative C. In order to provide increased resource protection, livestock grazing and recreation would not be allowed on McGregor Range under Alternative C.

BLM's preferred alternative is Alternative A. Implementation of Alternative A would provide a balanced approach to resource management on McGregor Range, and would satisfy the purpose and need as described in Chapter 1. That is, a new plan for management of the resources on the withdrawn public land within McGregor Range would be developed consistent with current legislation, and BLM's management actions on this withdrawn public land would be compatible with the military use and consistent with the principles of multiple use and sustained yield. Based on the results of public and agency review and comment on this Draft RMPA/EIS, the BLM Las Cruces Field Manager will recommend and the BLM State Director will select an alternative or combination of alternatives to be the proposed RMPA and publish it along with the Final EIS. A final decision will be made after a 60-day Governor's Consistency Review and a 30-day protest period. A Record of Decision and approved RMPA then will be published.

TABLE 2-4
ACREAGE FOR MANAGEMENT ACTIVITIES BY ALTERNATIVE

Management Activity	No-Action Alternative	Alternative A (BLM's Preferred Alternative)	Alternative B	Alternative C
Right-of-way Exclusion Areas	0	171,948	0	172,208
Right-of-way Avoidance Areas	0	0	0	434,023
Watershed Management Priority Areas	0	7,608	0	7,608
Vegetative Sale Areas	25,858[1]	19,575	205,801	0
HMP Areas	606,232	205,109	0	352,530

NOTE: [1] The acreage noted for the vegetative sale areas reflects the best available geographic information system (GIS) data maintained by the BLM.

TABLE 2-5
PROPOSED ACECs BY ALTERNATIVE

Proposed ACEC	No-Action Alternative	Alternative A (BLM's Preferred Alternative)	Alternative B	Alternative C
Black Grama Grassland (currently exists)	X	X		X
Escondida Site		X		X
Prehistoric Cultural Resources				X
Historic Cultural Resources				X

TABLE 2-2
PLAN ALTERNATIVES

Resource Concern	No-Action Alternative	Alternative A (BLM's Preferred Alternative)	Alternative B	Alternative C
Lands and Realty				
Linear and site facilities right-of-way avoidance and exclusion areas.	No right-of-way avoidance and exclusion areas identified.	Establish right-of-way exclusion areas as identified on Map 2-2. Exclusion areas would include military impact areas and some military training areas identified by Fort Bliss, WSAs, and ACECs as identified under special status species and cultural resources.	No right-of-way avoidance or exclusion areas.	Establish right-of-way exclusion and avoidance areas as identified on Map 2-4. Exclusion areas would include impact areas and some military training areas identified by Fort Bliss, WSAs, and ACECs as identified under special status species and cultural resources. The remainder of McGregor Range would be avoided by future right-of-ways.
Utility corridors	No designated corridors were identified in the 1986 RMP or 1990 RMPA.	Establish one north-south corridor and one east-west corridor as shown on Map 2-2. Corridors would be one mile wide.	Establish two north-south corridors and one east-west corridor (Map 2-3). Corridors would be 1 mile wide.	No corridors would be designated on McGregor Range because no additional utility right-of-ways would be allowed.
Terms and conditions for utility right-of-ways and short-term leases and permits	The BLM would process nonmilitary applications and issue the permit on a case-by-case basis with the concurrence of the military.	See general management guidance.	See general management guidance.	See general management guidance.
Mineral and Energy Resources				
Locatable minerals	McGregor Range was withdrawn from all forms of appropriation under the public land laws, including mining and mineral leasing laws, in 1957. Every 5 years, BLM would compile expressions of interest and information related to locatable minerals activities on lands adjacent to McGregor Range and evaluate whether the decision is still appropriate. If at that point the information supports a modification in the decision and if Fort Bliss concurs with BLM, opening all or portions of McGregor Range to locatable minerals mining would be affected. Any future exploration and development activities would comply with approved regulations.	McGregor Range would continue to be closed to entry for mining of locatable minerals (hard rock). Therefore, management under this alternative would be the same as the No-Action Alternative.	Same as Alternative A.	Same as Alternative A.

TABLE 2-2
PLAN ALTERNATIVES

Resource Concern	No-Action Alternative	Alternative A (BLM's Preferred Alternative)	Alternative B	Alternative C
Leasable minerals	McGregor Range was withdrawn from all forms of appropriation under the public land laws, including mining and mineral leasing laws, in 1957. Every 5 years, BLM would compile expressions of interest in leases on McGregor Range and information related to leasable minerals activities on lands adjacent to McGregor Range and evaluate whether the decision is still appropriate. If at that point the information supports a change in the decision and if Fort Bliss concurs with BLM, opening of all or portions of McGregor Range to leasable minerals would be affected. 100,000 acres opening notice would be published in the *Federal Register.*	McGregor Range would continue to be closed to minerals leasing (oil, gas, geothermal) and development. Therefore, management under the alternative would be the same as the No-Action Alternative.	Same as Alternative A.	Same as Alternative A.
Salable minerals	287,360 acres opening notice would be published in the *Federal Register.* Authorize mineral material disposals after U.S. Army concurrence.	McGregor Range would continue to be closed to the general public for extraction of salable minerals (sand, gravel, caliche). PL 106-65 Section 3022 specifically allows for the U.S. Army (Fort Bliss) to extract the material for construction needs on McGregor Range. For State and county roads on McGregor Range, BLM would consider applications from county or State entities, or their contractors, to extract minerals from McGregor Range for use on these county and State roads.	Same as Alternative A.	Same as Alternative A.
Renewable energy	No management decisions specific to renewable energy were identified.	Applications for development of wind and solar energy resource use would not be considered because of the potential incompatibility with military uses.	Applications for development of wind and solar energy resources would be considered only if they are consistent with other uses.	Applications for development of wind and solar energy resources would be considered consistent with other resource uses and only be allowed in areas other than exclusion areas as identified on Map 2-4.

TABLE 2-2
PLAN ALTERNATIVES

Resource Concern	No-Action Alternative	Alternative A (BLM's Preferred Alternative)	Alternative B	Alternative C
Soils				
Soil erosion	No management decisions specific to soil erosion were identified.	Future roads would be located to minimize erosion by avoiding areas of potential high and moderate erosion, where possible. Where such areas cannot be avoided, mitigation measures to minimize erosion would be implemented.	Same as Alternative A.	Future roads would not be located in areas where soils have high erosion hazard or where there are fragile soils. In other areas, placement of roads would require mitigation to reduce soil erosion.
Water Resources and Watershed Management				
Water availability for wildlife	Water for wildlife would be provided year-round in each pasture (this decision formerly was under the livestock-grazing program).	See general management guidance.	See general management guidance.	See general management guidance.
Construction of water supply infrastructure	Continue to implement the water resource projects identified in the 1990 RMPA: construct new pipelines; replace existing pipelines; and construct wells, water troughs, water storage tanks, and dirt tanks (this decision formerly was under the livestock-grazing program).	See general management guidance.	See general management guidance.	See general management guidance.
Watershed management	Develop and implement Grapevine Watershed Management Plan on 28,440 acres within the Grapevine Watershed Area. Develop and implement El Paso Canyon Watershed Management Plan on 19,760 acres within the El Paso Canyon Area. Develop and implement Cockleburr Watershed Management Plan. Develop a watershed monitoring plan through cooperation with Fort Bliss for the entire 608,385 acres.	Develop watershed management plan identifying six priority areas: four in the El Paso Draw watershed (Powell, Munson, Wildcat, Horse Camp), one straddling the Sacramento and El Paso watersheds (Daggar), and one in the Culp watershed (Lower Culp). The watershed plan would accomplish the following: (1) describe the baseline condition for watersheds (public land health assessment), (2) identify the health of the watershed, focusing on identification of problem areas, (3) develop objectives to correct problems to maximize the health of the watershed consistent with public land health standards (desired future condition), (4) include plan for monitoring continued health of the watershed, and (5) prioritize watershed issues and/or problems (i.e., for the six	A watershed management plan would not be developed and priority areas would not be identified.	Same as Alternative A.

TABLE 2-2
PLAN ALTERNATIVES

Resource Concern	No-Action Alternative	Alternative A (BLM's Preferred Alternative)	Alternative B	Alternative C
		areas identified above) and develop solutions. See Map 2-2.		
Vegetation				
Black Grama ACEC	Maintain 3,910 acres as the McGregor Black Grama Grassland ACEC.	Maintain the 3,910-acre Black Grama Grassland ACEC in accordance with the 1978 Cooperative Agreement among BLM, Fort Bliss, and New Mexico State University.	Eliminate the ACEC designation for the Black Grama Grassland ACEC.	Same as Alternative A.
Vegetative sales	Continue vegetative sale areas within the 25,858 acres to include plants for possible ornamental, landscaping, and seed harvest. [1]	Continue current designated vegetative sale areas (except exclude Centennial Range area) for possible ornamental and landscaping plants within 19,575 acres and identify the conditions for their removal. See Map 2-2.	Allow vegetative sales on all areas east of the Otero Mesa escarpment (except the Black Grama ACEC and Centennial Range) and areas west of the escarpment north of New Mexico Highway 506 (except the Class C Bombing Range). Identify conditions for plant removal. See Map 2-2.	Vegetative sales would not occur on McGregor Range.
Seed collection	Same as above.	See general management guidance.	See general management guidance.	See general management guidance.
Monitoring and assessments	Conduct monitoring studies on withdrawn public land on McGregor Range to determine watershed and range land conditions.	See general management guidance.	See general management guidance.	See general management guidance.
Control of noxious weeds	No management decisions specific to control of noxious weeds were identified.	See general management guidance.	See general management guidance.	See general management guidance.
Fire Management				
Prescribed burns	Plan and conduct prescribed burns: prepare burning plan for prescribed burn projects within the identified 220,800 acres. Conduct prescribed burns within the identified 220,800 acres (this decision formerly was under vegetation program).	See general management guidance.	See general management guidance.	See general management guidance.
Livestock Grazing				
Limits on grazing	No grazing would be allowed on the 244,000 acres of the Co-Use Area. Livestock grazing would continue to be limited to cattle and no more than three horses per pasture.	Limit livestock grazing to the 14 existing grazing units. Livestock grazing would continue to be limited to cattle and no more than three horses per pasture.	Limit livestock grazing to the 14 existing grazing units. Type of livestock and the number of horses per pasture would be determined based on ecological conditions.	Livestock grazing would not occur on McGregor Range.

TABLE 2-2
PLAN ALTERNATIVES

Resource Concern	No-Action Alternative	Alternative A (BLM's Preferred Alternative)	Alternative B	Alternative C
Grazing season of use	The livestock grazing season would continue to be from October 1 to June 30 (subject to the discretion of the BLM Field Manager). Summer grazing would occur on some units to enable utilization of tobosa, sacaton, and other species that normally are not a primary forage resource and, in so doing, would reduce utilization of key forage species such as black grama. The right to use livestock forage in a given pasture would continue to be determined by competitive bidding at public auction.	Season of use would be determined on a unit-by-unit basis. A competitive grazing program is dependent upon vegetative condition, the ability to maximize public land health, rainfall, and other factors. Where BLM can meet public land health standards (desired future conditions), adjust grazing season of use to sustain competitive nature of the grazing program.	Same as Alternative A.	No season of use would be determined because livestock grazing would not occur on McGregor Range.
Forage utilization	No more than 50 percent of key forage species would be utilized each year by all grazing animals. As necessary, BLM would cause livestock redistribution by rotating access to water supplies, provided that restricted supplies are not needed by wildlife. McGregor monitoring would be conducted and evaluated annually to determine the authorized grazing use to be contracted, and document the resulting vegetation trends.	The average utilization would be managed to achieve the desired future conditions for each ecological site. If the utilization is not consistent with the desired future condition the livestock numbers would be adjusted and/or grazing may be deferred during the growing season.	Same as Alternative A.	Because livestock grazing would not occur on McGregor Range, forage utilization would be based on wildlife use, and no limit would be determined.
Grazing facilities	BLM would continue to maintain and repair all grazing-related facilities, except that lessees would be responsible for maintenance of boundary fences and gates during the grazing season.	BLM is responsible for all grazing-related facilities, and maintains all wildlife waters year round.	Same as Alternative A.	Same as Alternative A.

TABLE 2-2
PLAN ALTERNATIVES

Resource Concern	No-Action Alternative	Alternative A (BLM's Preferred Alternative)	Alternative B	Alternative C
Construction of range improvements	47.75 miles of unimproved roads would be constructed, to provide access to water facilities. The roads would be suitable for fair weather travel by conventional vehicle. Three new corrals would be constructed.	See general management guidance.	See general management guidance.	See general management guidance.
Animal damage control	No management decisions specific to animal damage control were identified.	See general management guidance.	See general management guidance.	See general management guidance.
Salt and protein placement	Placement of salt, mineral, and protein supplements in relation to water supply would be determined on a case-by-case basis.	BLM has determined that this type of decision is not a planning level decision, so it was eliminated.	BLM has determined that this type of decision is not a planning level decision, so it was eliminated.	BLM has determined that this type of decision is not a planning level decision, so it was eliminated.
Wildlife Habitat				
MOU for wildlife management	Prepare McGregor Wildlife Management MOU.	See general management guidance.	See general management guidance.	See general management guidance.
Habitat management	Inventory McGregor Range antelope habitat, and combine McGregor Antelope and Otero Mesa Antelope into one HMP. Evaluate McGregor Co-Use Area HMP in the Sacramento Mountains foothills habitat. Evaluate McGregor Co-Use Area HMP in the basin habitats. Inventory McGregor Basin habitats outside of the Co-Use Area HMP. Combine Co-Use Area and Basin HMPs. Consolidate McGregor HMP inventories and evaluations. Prepare, implement, and monitor McGregor Range HMP.	Develop and implement two HMPs: one for the Sacramento Mountain foothills and one for the grassland habitat (see Map 2-2). Each plan would accomplish the following. (1) Guide the management, monitoring, and evaluation of habitat. (2) Identify priority species and their habitats. (3) Within those areas, develop objectives for enhancing and maintaining the priority habitat. Objectives would be based on standard habitat sites, standards for public land health, and the latest range site guidelines. (4) Determine and implement monitoring needed to measure the success of the habitat management. The Sacramento Mountain foothills HMP primarily consists of the piñon-juniper grass mountains, mixed shrub mountains, and grass mountains standards habitat sites (SHSs).	Manage wildlife habitat within the Sacramento Mountain foothills and grassland habitats without the development of HMPs.	Develop and implement two HMPs as described in Alternative A and, in addition, include a larger area in each HMP would be larger (see Map 2-2). The Sacramento Mountain Foothills HMP primarily consists of the piñon-juniper grass mountains, mixed shrub mountains, grass mountains, and grass hills SHSs. The Grassland Habitat HMP area includes all grassland habitats on Otero Mesa and within the escarpment.

TABLE 2-2
PLAN ALTERNATIVES

Resource Concern	No-Action Alternative	Alternative A (BLM's Preferred Alternative)	Alternative B	Alternative C
		The Grassland Habitat HMP area includes all grassland habitats on Otero Mesa.		
Animal damage control	McGregor ADC activities would be governed by the annual ADC Plan.	See general management guidance.	See general management guidance.	See general management guidance.
Other decisions from the 1990 RMPA	Conduct McGregor wildlife and wildlife habitat monitoring studies. Allocate wildlife forage on nongrazed areas of McGregor Range.	See general management guidance.	See general management guidance.	See general management guidance.
Special Status Species				
Special status species habitats	No management decisions specific to special status species habitats were identified.	See general management guidance.	See general management guidance	See general management guidance.
Aplomado Falcon	No management decisions specific to aplomado falcon were identified.	Cooperate with the USFWS on the release of aplomado falcons under Section 10J of the ESA for McGregor Range. If Otero Mesa (including parts of McGregor Range) is identified by USFWS as one of the areas for release of aplomado falcon, the Grassland Habitat HMP would be expanded to address management issues necessary for aplomado falcons, as well as other grassland dependent species. The HMP would encompass suitable habitat on McGregor Range; however, it also may be developed in conjunction with appropriate public land adjacent to McGregor Range. This HMP would be developed prior to any releases, unless waived by the BLM State Director, in which case the HMP would be developed subsequent to the release.	Aplomado falcon release opportunities would not be considered on McGregor Range.	Same as Alternative A.
Survey	No management decisions specific to survey were identified.	See general management guidance.	See general management guidance.	See general management guidance.

TABLE 2-2
PLAN ALTERNATIVES

Resource Concern	No-Action Alternative	Alternative A (BLM's Preferred Alternative)	Alternative B	Alternative C
Recreation				
Identification of suitable areas for recreation	Monitor recreation use: Monitor visitor use on the withdrawn public land on McGregor Range to determine if the management of recreation resources is responsive to public needs and demands.	In coordination with Fort Bliss, identify areas suitable for recreation opportunities and develop terms and conditions for that use. Areas identified as suitable generally would be those areas currently used for recreation such as established camp sites and hiking trails.	Same as Alternative A.	No recreation would be allowed on McGregor Range.
Public education	No management decisions specific to public education were identified.	See general management guidance.	See general management guidance.	No education program is needed because recreation would not be allowed on McGregor Range.
Camping	No management decisions specific to camping were identified.	See general management guidance.	See general management guidance.	Camp locations would not be established because recreation would not be allowed on McGregor Range.
Off-highway vehicle use	Limited ORV [off-road vehicle] use designation on 608,345 acres. Close Escondida Site to ORV use.	OHV use limited to designated roads and trails on McGregor Range; the Escondida Site and all ACEC areas would be closed to OHV use.	OHV use limited to designated roads and trails on McGregor Range; theEscondida Site would be closed to OHV use.	OHV limited to designated roads and trails on McGregor Range except the following areas would be closed: Escondida Site, all ACECs, WSAs, and military impact areas. Designated roads include New Mexico Highway 506 and county roads on McGregor Range.
Visual Resources				
Visual resource management classes	No specific management decisions identified other than the identification of visual resource management classes and associated management prescriptions.	Maintain current visual resource management classes.	Same as Alternative A.	Same as Alternative A.
Wilderness				
None	WSAs are managed under Interim Management Policy and Guidelines for Lands Under Wilderness Review.	See general management guidance.	See general management guidance.	See general management guidance.
Areas of Critical Environmental Concern				
Opportunities for ACECs are included under the appropriate resource area (Black Grama ACEC under Vegetation, and Escondida Site and other cultural resource ACECs under cultural resources).				

TABLE 2-2
PLAN ALTERNATIVES

Resource Concern	No-Action Alternative	Alternative A (BLM's Preferred Alternative)	Alternative B	Alternative C
Cultural Resources				
Cultural resource management	A Cultural Resource Management Plan would be developed with the objective of protecting cultural resources on the McGregor Range.	See general management guidance.	See general management guidance.	See general management guidance.
Escondida Site	The Escondida Site would be fenced to exclude livestock grazing and other surface-disturbing uses. The Escondida Site would be designated as "closed" to off-road vehicle use through a notice published in the *Federal Register*.	Nominate the Escondida Site to the National Register of Historic Places (NRHP), designate 220 acres around the site as an ACEC and closed to OHV use (except for the existing road that would be designated as limited use through this parcel) and prepare activity plan to protect the site.	Continue current management strategy of off-road vehicle closure and rescind unimplemented decision to fence the site.	Nominate the site to the NRHP, designate 220 acres around the site as an ACEC and closed to OHV use, prepare activity plan to protect the site, fence entire parcel, and reroute road as necessary.
Tribal consultation	No specific management decisions identified.	See general management guidance.	See general management guidance.	See general management guidance.
NRHP nominations	No management decisions specific to NRHP nominations were identified.	See general management guidance.	See general management guidance.	Designate two ACECs for cultural resources, one for historic resources and one for prehistoric resources, and prepare activity plans for each as follows: McGregor Historic ACEC: (1) Don Lee Ranch (10 acres of public land) (2) Turquoise Railroad Station (25 acres of public land) McGregor Range Prehistoric ACEC: (1) McGregor Site (90 acres of public land) (2) Dos Manos Site (200 acres of public land) (3) Pendejo Cave (10 acres of public land) (4) Pintada Rock Shelters (40 acres of public land)
New Mexico Cultural Resources Information System database	No management decisions specific to the NMCRIS database were identified.	See general management guidance.	See general management guidance.	See general management guidance.

TABLE 2-2
PLAN ALTERNATIVES

Resource Concern	No-Action Alternative	Alternative A (BLM's Preferred Alternative)	Alternative B	Alternative C
Use categories	No management decisions specific to cultural resource use categories were identified.	See general management guidance.	See general management guidance.	See general management guidance.
Inventory	A Cultural Resource Management Plan would be developed for the archaeological sites on McGregor Range. The objectives of the plan would be to protect the cultural resources of the area. BLM would begin a plan of action to establish procedures and priorities for conducting a 10 percent Class II cultural resource inventory and would initiate field work to accomplish this goal. The BLM would issue research permits to institutions or organizations for the collection, recovery, and analysis of cultural data on withdrawn public land on a case-by-case basis.	See general management guidance.	See general management guidance.	See general management guidance.
Monitoring	No management decisions specific to monitoring cultural resources were identified.	See general management guidance.	See general management guidance.	See general management guidance.
Transportation and Access				
Access plan	Public access would be allowed for hunting if and when a hunt is conducted that is consistent with resource management objectives and other controlled uses (this decision formerly was under recreation).	With the roads database developed by the BLM New Mexico State Office (2002), the Las Cruces Field Office would develop an access plan that would accomplish the following: (1) establish an interagency working group (BLM and Fort Bliss) for road construction and management; (2) refine the roads database; (3) develop road management plan that addresses accessibility on McGregor Range; (4) consider OHV, recreation, natural resources, and public safety; (5) lead to road designations (open, limited, and closed); (6) develop a recreation map showing the roads and	Develop a plan to address management of access, as Alternative A. The plan would emphasize (1) maintaining areas and routes open for existing public access and (2) establishing new roads for access to public land for recreation, research, and other authorized uses on McGregor Range.	Develop a plan to address management of access, as described in Alternative A. The plan would emphasize (1) limiting public access to McGregor Range and (2) closure and rehabilitation of redundant/unneeded roads (closed roads would be closed to both public and military use).

TABLE 2-2
PLAN ALTERNATIVES

Resource Concern	No-Action Alternative	Alternative A (BLM's Preferred Alternative)	Alternative B	Alternative C
		trails system and which routes are open; (7) in coordination with Fort Bliss, develop educational materials explaining (a) the presence of UXO on McGregor Range, (b) how to recognize UXO, (c) dangers associated with UXO, and (d) associated safety procedures to avoid UXO.		
Access permits	Recreation uses other than hunting occasionally would be permitted only after U.S. Army concurrence. (This decision formerly under recreation.)	See general management guidance.	See general management guidance.	Recreation permits are not necessary because no recreation would be allowed on McGregor Range as described previously.
Paleontological Resources				
Protection/ conservation	No management decisions specific to protection/conservation were identified.	See general management guidance.	See general management guidance.	See general management guidance.
Evaluation	No management decisions specific to paleontological resources were identified.	See general management guidance.	See general management guidance.	See general management guidance.

NOTE: [1] The acreage noted for the vegetative sale area reflects the best available geographic information system (GIS) data maintained by the BLM.

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3.0

Affected Environment

3.0 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

This chapter provides a summary of the existing environment within the Planning Area. Generally, the discussion is limited to the resources and resource uses that could be affected by the proposed Resource Management Plan Amendment (RMPA) alternatives. The resource information presented in Chapter 3 is of sufficient detail to support and clarify the impact analysis provided in Chapter 4. The resources and resource uses discussed in this chapter have been identified as associated with the issues listed in Chapter 1, and/or need to be described for an overall understanding of the affected environment and issues identified.

Much of the information in this chapter is summarized from material contained in the Management Situation Analysis (MSA). In preparing the MSA, environmental resource data were collected and compiled using existing data from several sources. The MSA is available for review at the Bureau of Land Management (BLM) Las Cruces Field Office. The majority of the data were provided by the Las Cruces Field Office of the BLM; Federal, State, county and local agencies including but not limited to the U.S. Geological Survey (USGS); U.S. Department of the Army (U.S. Army), Fort Bliss; U.S. Fish and Wildlife Service (USFWS); New Mexico Department of Game and Fish (NMDGF); and other State agencies, counties, and other public and private sources. Data included published and unpublished reports, maps, and digital format (geographic information system [GIS]). The data compiled represent the level of detail appropriate for and commensurate with the programmatic nature of this RMPA/Environmental Impact Statement (RMPA/EIS). Where data were lacking, the data were interpreted from the best available sources. Sources used in the preparation of this RMPA/EIS are listed in the Reference section.

Acreages used for analysis purposes in this EIS reflect the best available GIS data maintained by the BLM. According to GIS data, McGregor Range includes a total of 694,981 acres of Federally owned lands, which include 606,233 acres of public land withdrawn for military use, 70,884 acres owned by the Department of Defense , and 17,864 acres managed by the U.S. Forest Service (Forest Service).

In accordance with the National Environmental Policy Act (NEPA) regulations codified in Title 40 Code of Federal Regulations 1502.15 (40 CFR 1502.15), the affected environment section discusses the existing condition of the human and natural environment that potentially could be affected, beneficially or adversely, by the alternatives. The affected environment is characterized by the following resources and land uses:

- Physiography and Topography
- Climate and Meteorology
- Lands and Realty
- Transportation and Access
- Geology and Minerals
- Soils
- Water Resources
- Air Quality
- Vegetation
- Wildlife
- Special Status Species
- Livestock Grazing
- Fire Management
- Hazardous Materials
- Cultural Resources
- Paleontological Resources
- Recreation
- Visual Resources
- Special Management Areas
- Social Economic Conditions
- Unexploded Ordnance

3.1.1 New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management

As discussed in Section 2.2, the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (Standards and Guides) have been incorporated into BLM land use plans. To initiate the assessment and monitoring of public land health, standards for land health and associated indicators were developed for site-specific types of land through the assignment of ecological sites. An ecological site is "[a] kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation and [differs] in its response to management" (Society for Range Management 1998). Ecological site descriptions are based on the type of vegetation expected for a particular soil type as described by the Natural Resource Conservation Service (NRCS). Ecological sites differ from region to region and are described in NRCS Field Office Technical Guides, which are specifically applicable for the area for which they are prepared. Section II of the appropriate Field Office Technical Guide contains detailed information about the ecological sites for that area. The Field Office Technical Guides applicable to McGregor Range are the Otero County, New Mexico Field Office Technical Guide (NRCS 2003) and the Soil Survey of Otero Area, New Mexico (NRCS 1981).

On McGregor Range, evaluations of each ecological site within the grazing units were conducted during 2001 and 2002. A map of the ecological sites on McGregor Range and the results of the evaluation of these ecological sites are included in Appendix C. Map C-1 shows the location of the ecological sites, and Table C-1 identifies each ecological site along with a description of the desired future conditions and the existing condition. The desired future condition was developed from the NRCS descriptions of ecological sites for Otero County and Fort Bliss. The existing condition was developed from field observations by a team of BLM resource specialists from the Las Cruces Field Office. At this time it has not been determined whether the ecological sites are meeting the standards. If the assessment and determination process concludes that a site no longer has the capability to meet the desired future condition as described in Table C-1, the desired future condition would then become that which is commensurate with the site's capability, which will be determined by BLM.

3.2 PHYSIOGRAPHY AND TOPOGRAPHY

McGregor Range is located in southeastern New Mexico, partially on Otero Mesa with the northern portion of the range extending into the southern foothills of the Sacramento Mountains. The western portion of McGregor Range lies in the Tularosa Basin, extending as far as U.S. Highway 54. Elevations vary from 4,000 feet in the basin to 5,500 feet on Otero Mesa to 7,100 feet in the foothill region. McGregor Range generally lies on the northern fringe of the Chihuahuan desert, which occupies the plateau between the Sierra Madre Occidental and the Sierra Madre Oriental in north-central Mexico, and extends into a portion of Arizona and into the Rio Grande and Pecos River Basins in New Mexico and Texas (BLM 1988a).

3.3 CLIMATE AND METEOROLOGY

Southern New Mexico has an arid to semi-arid continental climate with mild winters and hot summers. The climate is determined mainly by a subtropical high-pressure system. As the summer Bermuda High intensifies and moves westward, the predominant wind flow is from the southeast. This wind pattern brings in moist air from the Gulf of Mexico and provides a summer maximum precipitation pattern through localized thunderstorms. July, August, and September are the wettest months of the year. As winter approaches and the Bermuda High weakens, polar masses intrude into the area and the general wind pattern is from the northwest and west. Average precipitation below 6,000 feet is between 8 and 10 inches annually and between 14 and 16 inches at higher elevations.

The average annual temperature in the Planning Area is approximately 60 degrees

Fahrenheit (°F) (15.6 degrees Celsius [°C]). The average maximum temperature in July is approximately 96°F (35.6°C) with maximum readings generally over 100°F (37.8°C). The average minimum temperature in January is approximately 39°F with minimum readings generally in the low 20s (-6.7 to -4°C). Wind speeds average approximately 6 to 10 miles per hour on an annual basis and generally are highest in the spring (March to May). These spring winds are generally from the west and may exceed 30 miles per hour. Locally strong winds associated with summer thunderstorms may come from any direction and frequently exceed 30 miles per hour, but are usually brief.

3.4 LANDS AND REALTY

This section summarizes the lands and realty components within the Planning Area and identifies areas affected by the withdrawal of McGregor Range for military uses. The major components of the current and planned land uses addressed are jurisdiction and surface ownership; existing and future land uses; and utilities and rights-of-way.

3.4.1 Jurisdiction and Surface Ownership

McGregor Range is located in Otero County in south-central New Mexico. It is bounded by the Texas–New Mexico state line on the south; the Lincoln National Forest on the north; U.S. Highway 54 on the west; and State-owned and public land to the east. According to PL 106-65 and real estate records, McGregor Range includes a total of 697,472 acres of Federal land. Of that land, 608,385 acres are BLM-administered land withdrawn from the public domain for military use, 71,083 acres are owned by the U.S. Department of Defense, and 17,864 acres are administered by the Forest Service. However, BLM uses GIS data for the purpose of land use planning analysis, and the best available current GIS data reflect acreages that differ from those listed in PL 106-65. According to the GIS data, McGregor Range has a total of 694,981 acres of Federal land. Of that land, 606,233 acres are BLM-administered public land withdrawn from the public domain for military use, 70,884 acres are owned by the U.S. Department of Defense, and 17,864 acres are administered by the Forest Service. The land administered by the Forest Service within McGregor Range is used by the U.S. Army in accordance with a memorandum of understanding (MOU) between the Forest Service and U.S. Army, Fort Bliss. The jurisdictional status of McGregor Range lands is shown on Map 3-1, Land Status.

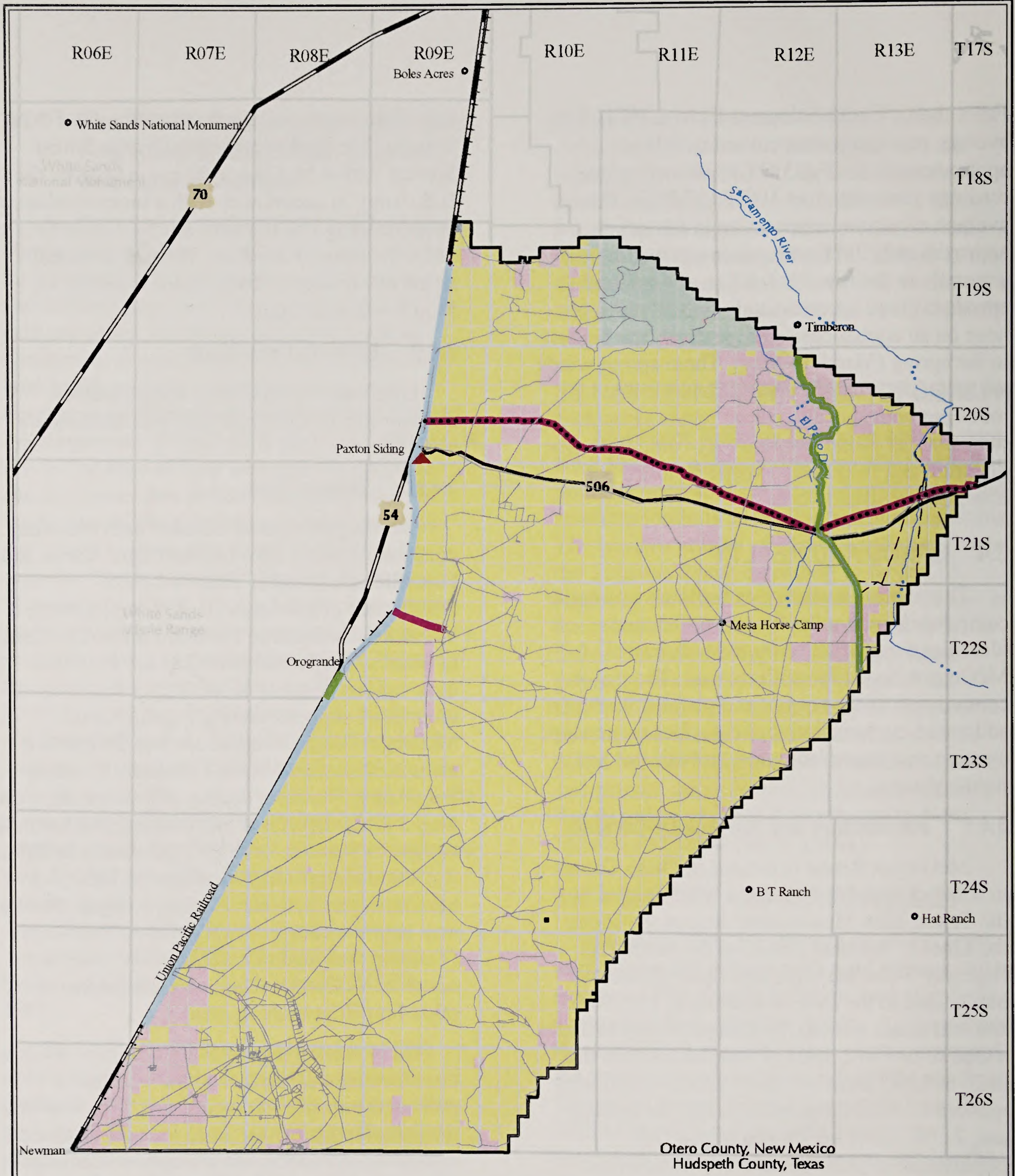
3.4.2 Existing Land Uses

Land uses on McGregor Range include military (the predominant use) and nonmilitary activities.

3.4.2.1 Military Uses

Training and typical mission activities that constitute military uses on McGregor Range and Fort Bliss are listed in Table 3-1 (U.S. Department of the Army [U.S. Army] 1998a). The activities listed in Table 3-1 are not confined to discrete geographic areas but are dispersed over various portions of McGregor Range as required to support training requirements. McGregor Range is organized into 26 training areas as shown on Map 3-2, Military Training Land Uses. The color coding of training areas on Map 3-2 corresponds to the training area land use categories listed in Table 3-2. As shown in Table 3-2, the training categories listed in Table 3-1 have been grouped into 10 main mapped training area land use categories, designated B through I. (Training area land use category "A" does not occur on McGregor Range, but does occur on other Fort Bliss training areas.)

Each training area land use category, while a discrete map unit, carries with it multiple permitted uses that are compatible from a military mission standpoint. As Table 3-2 shows, aircraft operations are conducted throughout McGregor Range. Dismounted training, which is any training conducted on foot, can occur almost everywhere on McGregor Range, except in impact areas and in the areas of critical environmental concern (ACECs), although some of the areas require special permission (U.S. Army 1998a). Off-road vehicle maneuvers only occur on Training Area (TA) 8, located in the far southwest corner of McGregor Range. Controlled access field training exercise (FTX) sites can be


R06E
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R08E
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R10E
R11E
R12E
R13E
T17S
T18S
T19S
T20S
T21S
T22S
T23S
T24S
T25S
T26S
Boles Acres
White Sands National Monument
White Sands National Monument
70
Sacramento River
Timberon
El Paso Draw
Paxton Siding
506
54
White Sands Missile Range
Mesa Horse Camp
Orogrande
B T Ranch
Hat Ranch
Union Pacific Railroad
Newman
Otero County, New Mexico
Hudspeth County, Texas

Land Status and Realty

McGregor Range RMPA/EIS

October 21, 2004

Location in New Mexico

Universal Tranverse Mercator
Zone 13, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

SCALE 1 : 500,000

Legend:

Jurisdiction:
- 🟨 Public Land Withdrawn for Military Use
- ▭ Private Military Acquired Land
- ▭ U.S. Forest Service Lincoln National Forest
- ■ Public Water Reserve Withdrawal

Rights-of-Way:
- — Oil and Gas Pipelines
- — Power Transmission Right-of-way
- — Underground Telephone and Telegraph
- •••• Existing Transmission Line
- ▲ Border Patrol Inspection Station

SOURCE: Base Map information: BLM, Las Cruces Field Office, 2001
Jurisdiction Information: BLM, Las Cruces Field Office, 2001
Rights-of-Way Information: BLM, Las Cruces Field Office, 2001
Road Information: Ft Bliss, Director of Environment, 2001

General Reference:
- ▬ Primary Roads
- — Secondary Roads
- -- County Roads
- — Paved or Military Restricted Roads
- — Public Land Survey System
- ┼ Union Pacific Railroad
- -- Streams
- ● Geographic Place

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. Spatial information may not meet National Map Accuracy Standards. This information may not be updated without notification.

Map 3-1

TABLE 3-1
FORT BLISS TRAINING CATEGORIES

Training Category/Other Uses	Activities
1. Mission support facility	Test facilities, landing zones/pads, drop zones, radar facilities
2. Weapons firing	Firing areas for short range and high- and medium-altitude air defense (HIMAD), surface-to-surface, surface-to-air, and air-to-surface weapons; launch sites; firing points; laser-certified ranges; small arms ranges
3. Surface impact	Live artillery; live fire surface-to-surface missile impact areas; air-to-surface target areas
4. Surface danger zone (SDZ)/ safety footprint	Target debris areas and safety footprint for weapons and laser use
5. Off-road vehicle maneuver	Use of track or wheeled vehicles that is not confined to roads
6. On-road vehicle maneuver	Use of wheeled or tracked vehicles on existing roads
7. Controlled access field training exercise (FTX) Areas	Air defense training sites; FTX assembly; training; communication, command, and control
8. Dismounted training	Dismounted training, pyrotechnics
9. Aircraft operations	Fixed-wing and rotary-wing overflights and air-to-air training
10. Built-up areas	Range camps
ENV. Environmental conservation	Environmental management activities; conservation efforts conducted on Fort Bliss; i.e., Integrated Training Area Management (ITAM) Program, Integrated Natural Resource Management Plan (INRMP), Integrated Cultural Resources Management Plan (ICRMP)
PA. Public access	Areas available for public use for grazing and recreation

SOURCE: U.S. Army 1999a

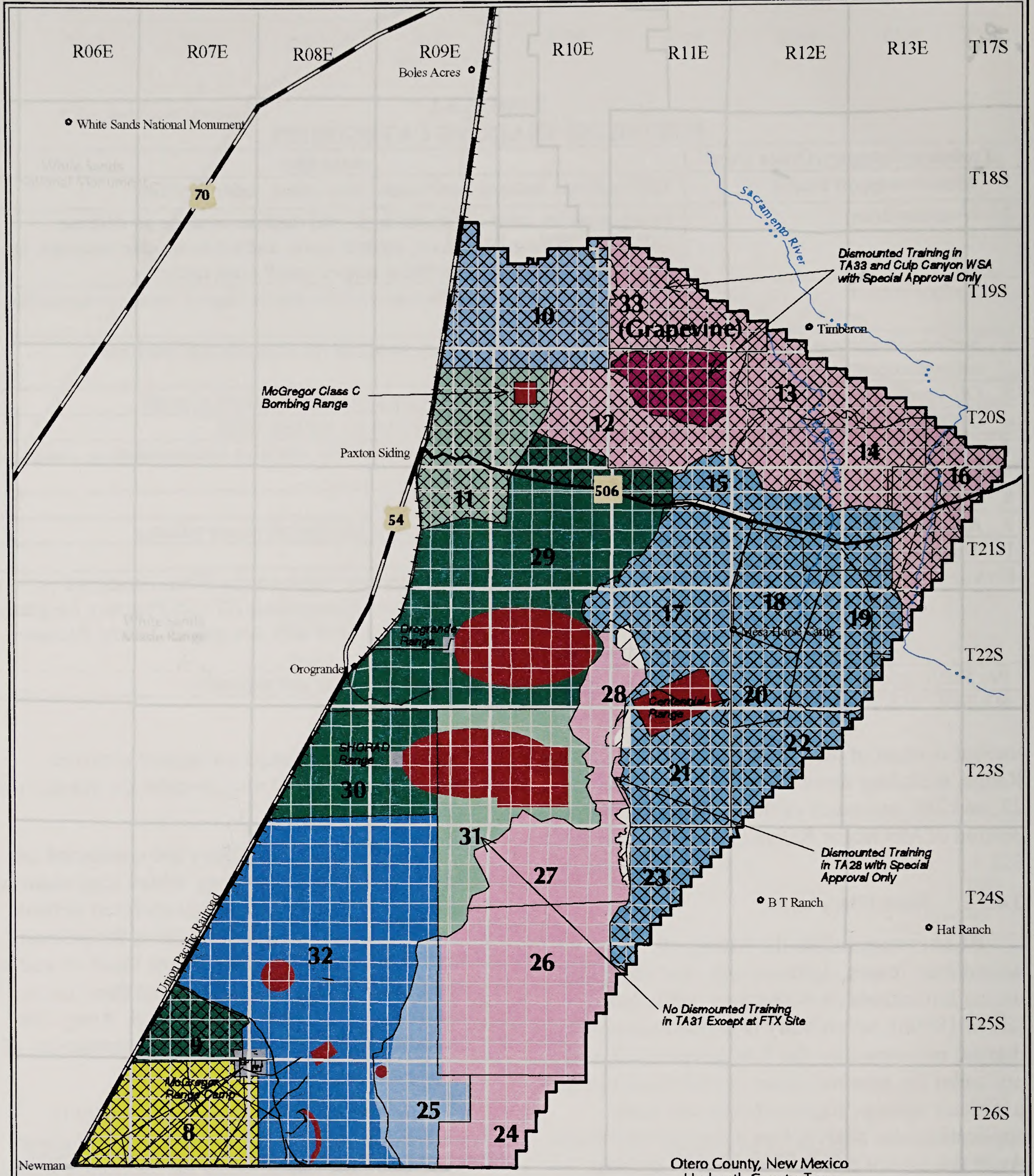
located in most of the training areas on McGregor Range, including those on Otero Mesa (TAs 17-23, and 26), and much of the Tularosa Basin portion of McGregor Range (TAs 9, 11, and 29-32).

3.4.2.2 Nonmilitary Uses

BLM is responsible for issuing all nonmilitary leases, rights-of-way, and other land use authorizations on withdrawn public land (BLM 1990b); nonmilitary is defined as projects that are not owned by the U.S. government, and not under the administration or under contract to a military agency. Rights-of-way and lease applications are analyzed on a case-by-case basis. As of the date of this document, only grazing leases have been issued on McGregor Range. Map 3-1 illustrates existing rights-of-way in the Planning Area. Under PL 106-65, McGregor Range is closed to minerals leasing and entry for mining of locatable minerals. This status may be reevaluated every 5 years, and if new information supports a change, the BLM may open all or portions of McGregor Range to leasable and locatable minerals with the concurrence of the U.S. Army U.S. Army. Any public use of McGregor Range requires an access permit issued by the U.S. Army; permits are granted on an individual basis.

The primary nonmilitary use conducted on McGregor Range is grazing, which may occur in up to 14 discrete grazing units (refer to Section 3.13, Livestock Grazing). Some of the grazing units designated by BLM include lands owned by the U.S. Army; the BLM manages these lands through an agreement with the U.S. Army. No livestock grazing is allowed on the remainder of the Range.

Occasional recreational uses, limited to hiking, bird hunting, picnicking, bird watching, and observing nature, occur on McGregor Range. In addition, off-highway vehicle (OHV) use occurs in some areas of the Range, though it is restricted to existing roads and trails. Big game hunting currently is made available to the public, dependent on herd conditions and the absence of conflict with military training activities. Recreational activities are allowed only in areas with public access, which includes BLM grazing units 1 through 15 (Fort Bliss training areas 10


R06E
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R11E
R12E
R13E
T17S
T18S
T19S
T20S
T21S
T22S
T23S
T24S
T25S
T26S
Boles Acres
White Sands National Monument
70
Sacramento River
Dismounted Training in TA33 and Culp Canyon WSA with Special Approval Only
Timberon
10
33 (Grapevine)
McGregor Class C Bombing Range
12
13
14
16
Paxton Siding
506
15
54
11
29
17
18
19
Orogrande Range
Mesa Horse Camp
Orogrande
28
Centennial Range
20
22
SHORAD Range
30
21
31
27
23
Dismounted Training in TA28 with Special Approval Only
B T Ranch
Hat Ranch
Union Pacific Railroad
32
26
No Dismounted Training in TA31 Except at FTX Site
9
McGregor Range Camp
25
8
24
Newman
Otero County, New Mexico
Hudspeth County, Texas

Military Training Land Uses

McGregor Range RMPA/EIS

November 05, 2004

Location in New Mexico

Universal Tranverse Mercator
Zone 13, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

SCALE 1 : 500,000

Legend:

Military Land Uses:
- McGregor Range Training Areas
- Black Grama Grassland Area of Critical Environmental Concern (ACEC)
- 🟨 B with Mission Facilities
- C
- 🟩 C with Mission Facilities
- D
- 🟦 D with Mission Facilities
- E
- F
- G
- 🟥 H
- I
- ▨ Public Access

General Reference:
- Primary Roads
- Secondary Roads
- County Roads
- Paved or Military Restricted Roads
- Public Land Survey System
- Union Pacific Railroad
- Streams
- ● Geographic Place

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. Spatial information may not meet National Map Accuracy Standards. This information may not be updated without notification.

SOURCE: Base Map information: BLM, Las Cruces Field Office, 2001
Military Information: Ft. Bliss, Director of Environment, 2001

URS

Map 3-2

TABLE 3-2
FORT BLISS TRAINING AREA LAND USE CATEGORIES

Training Area Land Use Category	Fort Bliss Training Categories											
	1	2	3	4	5	6	7	8	9	10	ENV*	PA**
	Mission Support Facility	Weapons Firing	Surface Impact	SDZ/Safety Footprint	Off-road Vehicle Maneuver	On-road Vehicle Maneuver	Controlled Access FTX	Dismounted Training	Aircraft Operations	Built-up Areas	Conservation	Public Access
B with Mission Facilities	X				X	X		X	X		X	X
C		X		X		X	X	X	X		X	X[1]
C with Mission Facilities	X	X		X		X	X	X	X		X	X[1]
D		X		X		X		X	X		X	X[1]
D with Mission Facilities	X	X		X		X		X	X		X	
E				X		X	X	X	X		X	X
F				X		X		X	X		X	X[1]
G				X				X	X		X	X
H			X						X			
I	X			X		X			X	X	X	X

SOURCE: U.S. Army 1999a

NOTES:

* Environmental Management. Environmental management activities; conservation efforts conducted on Fort Bliss (i.e., Integrated Training Area Management Program, Integrated Natural Resource Management Plan, and Integrated Cultural Resource Management Plan).

** Public access

[1] Public access in some areas (see Map 3-2)

through 23) and TA 8, subject to the use permits issued by the U.S. Army or BLM (with U.S. Army approval). The other nonmilitary uses currently on McGregor Range include the protection of wildlife and wildlife habitat and the prevention and appropriate suppression of brush and range fires.

3.4.3 Planned Actions

Planned land uses on McGregor Range primarily include the continuation of existing uses, including military training as specified by PL 106-65, the Fort Bliss Mission and Master Plan Programmatic Environmental Impact Statement (U.S. Army 2000), and the Training Area Development Concept (U.S. Army 1998b).

The U.S. Army reviews all land use applications submitted to the BLM for actions on public land withdrawn for military use. The U.S. Army determines if the action or activity would conflict with military uses of, and responsibilities to, McGregor Range. The U.S. Army then issues concurrence with BLM's request, or denies the application.

3.4.4 Utilities and Rights-of-way

Existing rights-of-way on land within McGregor Range are used for a telephone line, power transmission line, oil and gas pipeline, and Federal facilities (Border Patrol). These rights-of-way are shown on Map 3-1. BLM has not designated any utility corridors on McGregor Range; however, if additional facilities were proposed, BLM promotes joint use of existing rights-of-way whenever possible (BLM 1990a).

New Mexico Highway 506 crosses McGregor Range, providing access from U.S. Highway 54 to communities and ranches east of McGregor Range. Additionally, there are several county roads located on the eastern portion of McGregor Range. The State of New Mexico and Otero County have rights-of-way for these roads under the authority of Revised Statute (R.S.) 2477 (43 United States Code [USC] 932), which granted rights-of-way for the construction of highways across public land not reserved for public uses. In the Federal Land Policy and Management Act (FLPMA), Congress repealed R.S. 2477, but did not terminate valid rights-of-way existing on the date of FLPMA's enactment. Therefore, New Mexico Highway 506 is considered and managed as an existing right-of-way.

3.5 TRANSPORTATION AND ACCESS

The major transportation routes near and on McGregor Range are U.S. Highway 54 and New Mexico Highway 506, respectively. The annual average daily traffic on U.S. Highway 54 includes about 5,960 vehicles; New Mexico Highway 506 includes about 30 vehicles (BLM 1999). Other roads on McGregor Range include numerous county roads in the northern and eastern areas of McGregor Range. A partial inventory of the road networks present on McGregor Range is shown on Map 3-1.

U.S. Highway 54, a four-lane divided highway, connects Alamogordo, New Mexico and El Paso, Texas. Though this highway is located off of McGregor Range, it parallels the western boundary of the range, as does the Southern Pacific Railroad. Infrequent closures of U.S. Highway 54 are required for safety reasons (U.S. Army 2000).

New Mexico Highway 506 is the main road on McGregor Range. As shown on Map 3-1, the two-lane and primarily dirt road travels in an east-west direction providing access from U.S. Highway 54 to communities east of McGregor Range. This highway is maintained by Otero County. Permits are not required to use New Mexico Highway 506 (U.S. Army 1998b); however, operations on McGregor Range require the occasional closure of this highway for safety reasons (U.S. Army 1999a). Based on data from 1996, road closures typically occur in six-to-nine-hour increments during mostly daylight hours. The majority of closures occur in late summer and fall (U.S. Army 2000).

The road network on McGregor Range includes both unpaved county roads and other unpaved roads that primarily are used by the BLM and U.S. Army. The county roads connect with New Mexico Highway 506 in the eastern portion of McGregor Range; permits are not required to use the county roads. Other roads that require permits are present throughout McGregor Range. The U.S. Army authorizes public access to areas of McGregor Range other than New

Mexico Highway 506 and associated county roads through a check-in and check-out process. If the U.S. Army determines that military operations, public safety, or national security require closure to the public of any road, trail, or areas of the public land withdrawn for military use, then the Secretary of the Army may take such action (BLM 1988a). Therefore, the entire range, including New Mexico Highway 506, is subject to closure.

BLM defers most management responsibilities associated with roadways and access to the U.S. Army. Because road closures issued by the U.S. Army typically last only 6 to 9 hours, with most closures occurring in the late summer and fall, restrictions on public access to McGregor Range do not prohibit current uses (e.g., grazing and associated activities). Currently, BLM does not actively manage access or roadways, but limits vehicle travel to existing roads and trails. BLM conducts roadway maintenance activities in coordination with the U.S. Army, as necessary. The U.S. Army develops new roads, as needed, to meet its mission requirements.

3.6 GEOLOGY AND MINERALS

3.6.1 Geology

McGregor Range is located in the Basin and Range physiographic province, which is characterized by steep, north-south trending, subparallel and discontinuous mountains separated by deep, gently-sloping, alluvial-filled basins or valleys. Along the eastern side of the Basin and Range is the Rio Grande Rift Valley (Hawley 1978).

3.6.1.1 Stratigraphy

The oldest rocks that crop out on the McGregor Range are Proterozoic metasedimentary rocks (quartzites, gneisses, schists) intruded by granitic plutons and gabbroic sills and dikes. These are exposed in the northern part of McGregor Range in the southern Sacramento Mountains. Other Proterozoic rocks in the area in the subsurface include metasedimentary, carbonates, and granitic rocks (U.S. Army 1998c).

Paleozoic rocks are very abundant in the subsurface and mountains of the area and include dolostone, sandstone, shales, limestones, quartzose sandstone, and cherts. There are no rocks of Mesozoic age in the McGregor Range area. Only thin erosional remnants of some Cretaceous limestones and sandstones have been noted to the east of the range.

Cenozoic rocks of the middle Pliocene (Tertiary) through Holocene form the upper-basin fill in most of the western part of McGregor Range. The Pliocene–early Pleistocene units consist of unconsolidated sand and gravel deposits in alluvial fan, fluvial, and lacustrine environments. Holocene (recent) alluvial fan, terrace, and piedmont slope deposits form the lower foothills of the Hueco Mountains, consisting primarily of limestone boulders, gravel, and sand. Caliche deposits are common in the alluvial fan deposits. Most of the arroyos and drainages consist of Holocene sand, to coarse gravel,to boulders that are predominately limestone.

Recent basin floor deposits form the lower parts of the Tularosa Basin and consist of loams, silt, sand, and nonalkaline playa lake deposits; some of these units may be gypsiferous. There are areas of small dunes and hummocks of wind-blown sand over most of the basin fill throughout the flat-lying areas of the western McGregor Range. Several sand dunes also overlie the foothills of the southern Sacramento Mountains in the northern part of McGregor Range.

Tertiary intrusive rocks (monzonites, rhyolites, diorites, syenites, and trachytes) are exposed in the hills to the south of Orogrande in the southern Jarilla Mountains, eastern Three Buttes, and northern Hueco Mountains and are encountered in drill holes into the subsurface of the Otero Platform. These rocks are associated with skarn and vein deposits found in the Orogrande Mining District. These intrusives in the Hueco Mountains are the northwesternmost igneous activity of the Trans-Pecos alkaline magmatic province.

The Trans-Pecos magmatic province is the southern extension of the North American Cordilleran alkalic igneous belt. Magmas and the resulting igneous rocks are a common source for many types of ore deposits. Different magma compositions cause different types of ore deposits to form. The igneous rocks in and around the McGregor Range are Eocene to Oligocene in age. The oldest rocks form dikes and sills and are exposed in the Sacramento Mountains and form stocks in the Jarilla Mountains (U.S. Army 1998c).

3.6.2 Mineral and Energy Resources

Mineral resources may be identified as locatable, saleable, or leasable. Locatable minerals are all minerals subject to location under the Mining Law of 1872. Locatable minerals include metallic minerals such as gold, copper, silver, lead, and zinc, and nonmetallic minerals such as barite and fluorspar. Saleable minerals include industrial minerals such as sand, clay, gravel, volcanic cinders, crushed stone, decorative stone, and caliche. Leasable minerals include oil, gas, and geothermal resources. Federal minerals ownership on McGregor Range is shown on Map 3-3, Federal Minerals Ownership.

Several relevant mineral and energy resource assessments have been completed: the RMPA/EIS for Federal Fluid Minerals Leasing and Development in Sierra and Otero Counties (BLM 2003a) presents an assessment of the potential of oil and gas, geothermal resources, and coal resources for an area that includes McGregor Range; and a Mineral and Energy Resource Assessment of the McGregor Range (U.S. Army 1998c) was completed as part of a requirement of the land withdrawal application for the McGregor Range. Table 3-3 provides a summary of the mineral and energy resource potential of the McGregor Range based on commodity. Resource potential is the likelihood for the occurrence of undiscovered concentrations of metal minerals, nonmetallic minerals (industrial materials), and energy resources.

3.6.2.1 Metallic Mineral Resources

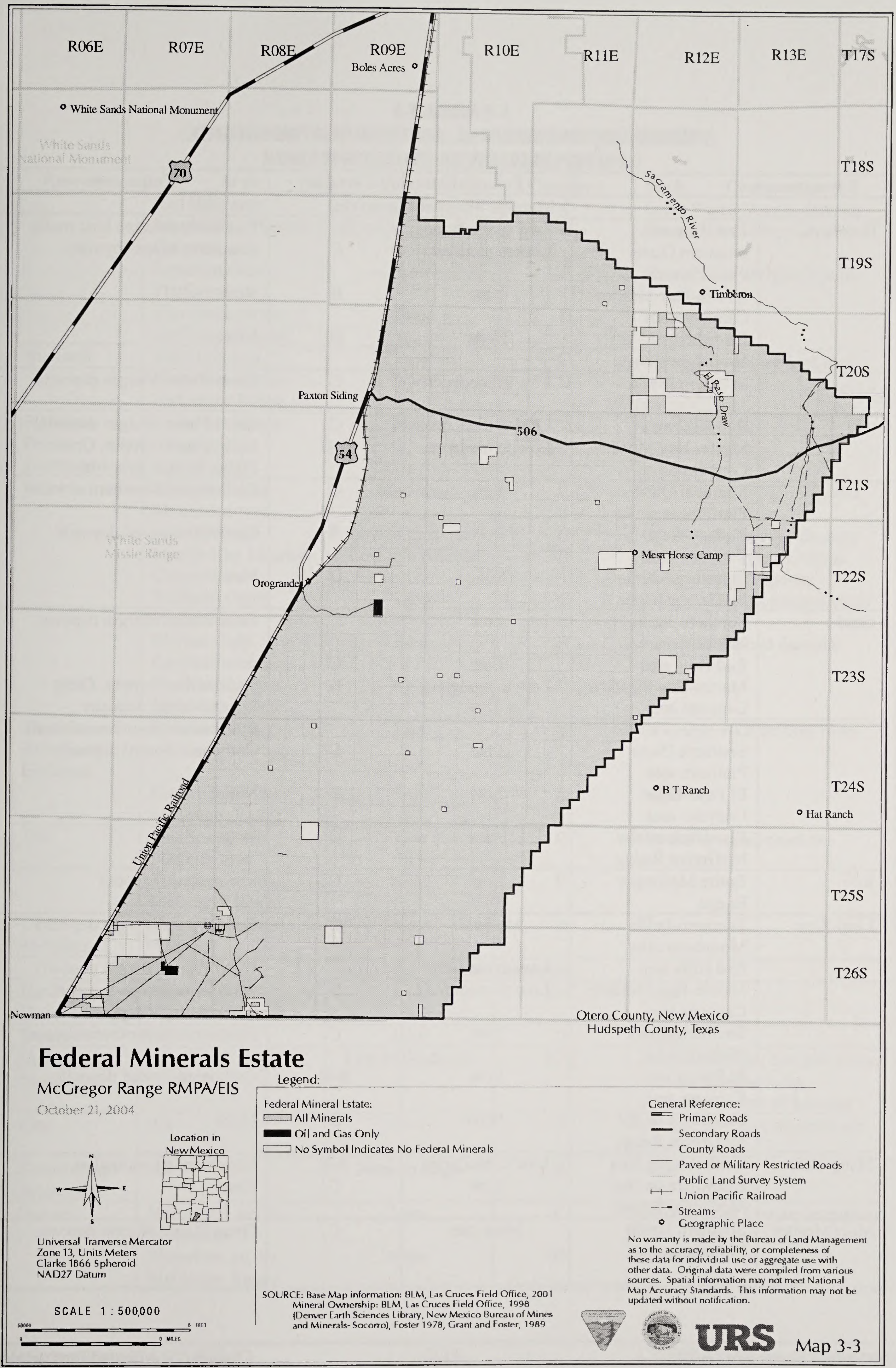
Some of New Mexico's largest gold deposits, referred to as Great Plains Margin deposits, occur along a north-south trending belt that generally coincides with the Great Plains physiographic margin with the Rio Grande Rift – Basin and Range and the Rocky Mountains physiographic provinces. These deposits contain both precious and base metals. Five mines or mining districts in the vicinity of the McGregor Range have produced metallic minerals; however, none of these areas are currently active. There are six favorable areas for metallic mineralization present within the McGregor Range as determined from geologic investigations and geochemical sampling. At most locations the potential is low or low to moderate (BLM 2003a; U.S. Army 1998c).

3.6.2.2 Nonmetallic (Industrial) Mineral Resources

Fourteen nonmetallic (industrial) commodities with potential for development are present on McGregor Range (BLM 2003a; U.S. Army 1998c). Because McGregor Range is remote, most industrial resource potentials are rated as low to moderate (refer to Table 3-3). These ratings are based primarily on transportation and marketing considerations. Some industrial commodities areas within the McGregor Range, such as construction aggregate, limestone, and gypsum, are rated as having a high potential for development. Industrial minerals and materials, primarily sand, gravel, and limestone, are currently produced from numerous small pits in the vicinity of the McGregor Range. Industrial rocks and minerals are present across most of McGregor Range, but these materials also are widely available from other sources closer to the areas in which they are used. Large amounts of sand, gravel, and building stone are obtained from the Tularosa Basin and Hueco Bolson, and limestone is quarried from Paleozoic rocks in the surrounding mountains and mesas (U.S. Army 1999a). Sand and gravel aggregate has been extracted from various borrow pits on public land in the area, primarily to the west of McGregor Range along U.S. Highway 54. No free use permits have been issued for obtaining sand and gravel borrow from McGregor Range (Torrez 2002).

3.6.2.3 Energy Resources

Four energy resources were evaluated as part of the 1998 mineral and energy resources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R12E
R13E
T17S
T18S
T19S
T20S
T21S
T22S
T23S
T24S
T25S
T26S
Boles Acres
White Sands National Monument
White Sands National Monument
70
Sacramento River
Timberon
El Paso Draw
Paxton Siding
506
54
White Sands Missile Range
Mesa Horse Camp
Orogrande
B T Ranch
Hat Ranch
Union Pacific Railroad
Newman
Otero County, New Mexico
Hudspeth County, Texas
Location in New Mexico
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W
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SCALE 1 : 500,000
FEET
MILES
Legend:
Federal Mineral Estate:
All Minerals
Oil and Gas Only
No Symbol Indicates No Federal Minerals
General Reference:
Primary Roads
Secondary Roads
County Roads
Paved or Military Restricted Roads
Public Land Survey System
Union Pacific Railroad
Streams
Geographic Place
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Federal Minerals Estate

McGregor Range RMPA/EIS

October 21, 2004

Universal Tranverse Mercator
Zone 13, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

SOURCE: Base Map information: BLM, Las Cruces Field Office, 2001
Mineral Ownership: BLM, Las Cruces Field Office, 1998
(Denver Earth Sciences Library, New Mexico Bureau of Mines and Minerals- Socorro), Foster 1978, Grant and Foster, 1989

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. Spatial information may not meet National Map Accuracy Standards. This information may not be updated without notification.

Map 3-3

TABLE 3-3
SUMMARY OF MINERAL AND ENERGY RESOURCE POTENTIAL ON McGREGOR RANGE

Resource	Area	Potential	Certainty	Comments
Metallic Mineral Resources				
Beryllium	Red Hills area	Low to moderate	B-C	Favorable alkaline host rocks
	Southern Otero Platform area	Low to moderate	C	Similar to topaz-rhyolites
	Martin-Hay Meadow Canyons area	Low	B	None
	Elsewhere on McGregor Range	None	D	None
Copper	Southern Jarilla Mountains area	Low to moderate	C	Great Plains Margin deposits
	Red Hills area	Low to moderate	C	Great Plains Margin deposits
	Martin-Hay Meadow Canyons area	Low to moderate	B-C	Sedimentary copper, Great Plains Margin deposits
	Southern Otero Platform area	Low	C	Epithermal/mesothermal veins
	El Paso-Culp Canyons area	Low	B	Carbonate-hosted deposits
	Elsewhere on the McGregor Range	None	D	None
Gold	Southern Jarilla Mountains area	Low	C	Great Plains Margin deposits
	Red Hills area	Low	C	
	Martin-Hay Meadow Canyons area	Low to moderate	B	Sedimentary copper, Great Plains Margin deposits Epithermal/mesothermal veins
	Southern Otero Platform area	Low	C	Carbonate-hosted deposits
	El Paso-Culp Canyons area	Low	B	None
	Elsewhere on the McGregor Range	None	D	None
Iron	Entire McGregor Range	Low	C	Favorable host rocks
Lead-Zinc	Southern Jarilla Mountains area	Moderate	C	Great Plains Margin deposits
	Red Hills area	Low to moderate	C	Great Plains Margin deposits
	Martin-Hay Meadow Canyons area	Low to moderate	B	Sedimentary copper, Great Plains Margin deposits
	Southern Otero Platform area	Low	C	Epithermal/mesothermal veins
	El Paso-Culp Canyons area	Low	B-C	Carbonate-hosted deposits
	Elsewhere on the McGregor Range	None	D	None
Manganese	Central basin area	Low to moderate	B-C	Geochemical anomalies
	Elsewhere on the McGregor Range	Low	C	None
Molybdenum	Southern Jarilla Mountains area	Moderate	C	Great Plains Margin deposits

TABLE 3-3
SUMMARY OF MINERAL AND ENERGY RESOURCE POTENTIAL ON McGREGOR RANGE

Resource	Area	Potential	Certainty	Comments
	Red Hills area	Low	C	Great Plains Margin deposits
	Martin-Hay Meadow Canyons area	Low to moderate	B	Great Plains Margin deposits
	Southern Otero Platform area	Low	C	Great Plains Margin deposits
	Elsewhere on the McGregor Range	None	D	None
Niobium	Red Hills area	Low	C	Favorable alkaline host rocks
	Elsewhere on the McGregor Range	None	D	None
Platinum Group Elements	Entire McGregor Range	None	C-D	Favorable host rocks
Silver	Southern Jarilla Mountains area	Moderate	C	Great Plains Margin deposits
	Red Hills area	Low to moderate	C	Great Plains Margin deposits
	Martin-Hay Meadow Canyons area	Low to moderate	B	Sedimentary copper, Great Plains Margin deposits
	Southern Otero Platform area	Low	C	Epithermal/mesothermal veins
	El Paso-Culp Canyons area	Low	B	Carbonate-hosted deposits
	Elsewhere on the McGregor Range	None	D	None
Thorium and Rare Earth Elements	Red Hills area	Low	C	Favorable alkaline host rocks
	Elsewhere on the McGregor Range	None	D	None
Tin	Southern Otero Platform area	Low	C	Similar to topaz-rhyolites
	Elsewhere on the McGregor Range	None	D	None
Other Metallics	Entire McGregor Range	None	D	None
		Industrial Mineral Resources		
Barite and Fluorite	All	Low	B-C	None
Borate	All	Low	D	None
Building Stone	All	Low to Moderate	B-D	Dimension stone has dark color; decorative stone lacks distinctive colors or textures
Clay	All	Low	C	No specialty clay minerals are present
Construction Aggregate	All	None to High	D	None
Garnet	Hueco and Jarilla Mountains	Low	C	Possibly near Tertiary intrusions
	Elsewhere on the McGregor Range	None	D	None

TABLE 3-3
SUMMARY OF MINERAL AND ENERGY RESOURCE POTENTIAL ON McGREGOR RANGE

Resource	Area	Potential	Certainty	Comments
Gypsum	All	None to High	B-C	None
Halite	All	Low	C	None
Limestone and Dolostone	All	None to High	D	Potential for limestone is none to high and dolostone is low
Nepheline	Red Hills area	Low	C	None
Syenite	Elsewhere on the McGregor Range	None	D	None
Silica	All	Low	D	None
Sulfur	All	Low	D	None
Energy Resources				
Coal	All	None	D	No Cretaceous rocks
Geothermal	Near McGregor Base Camp	High	D	None
	Western portion of McGregor Range	Moderate	B	None
	Elsewhere on the McGregor Range	Low	B	None
Petroleum	Otero Platform and Hueco Uplift area	Low to Moderate	C	None
	Sacramento Uplift area	Low	C	None
	Tularosa Basin area	Moderate	C	None
Uranium	Hueco Mountains and Martin-Hay Meadows area (SE part of McGregor Range)	Low	C	None
	Elsewhere on the McGregor Range	None	D	None

SOURCE: Bureau of Land Management 2003a; U.S. Army 1998c

NOTES: Definitions of Level of Resource Potential

- None (N) is a category for mineral resource potential reserved for a specific type of resource in a well-defined area.
- Low (L) mineral resource potential is assigned to areas where geologic, geochemical, and geophysical characteristics define a geologic environment in which the existence of resources in unlikely. This broad category embraces areas with dispersed but insignificantly mineralized rock, as well as areas with few or no indications of having been mineralized.
- Moderate (M) mineral resource potential is assigned to areas where geologic, geochemical, and geophysical characteristics indicate a geologic environment favorable for resource occurrence, where interpretations of data indicate a reasonable likelihood of resource accumulation, and (or) where an application of mineral deposit models indicates favorable ground for the specified type(s) of deposits.
- High (H) mineral resource potential is assigned to areas where geologic, geochemical, and geophysical characteristics indicate a geologic environment favorable for resource occurrence, where interpretations of data indicate a high degree of likelihood for resource accumulation, where data support mineral deposit models indicating presence of resources, and where evidence indicates that mineral concentration has taken place. Assignment of high resource potential to an area requires some positive knowledge that mineral-forming processes have been active in at least part of the area.

Definitions of Level of Certainty

A – Available information is not adequate for determination of the level of mineral resource potential.
B – Available information suggests the level of mineral resource potential.
C – Available information gives a good indication of the level of mineral potential.
D – Available information clearly defines the level of mineral resource potential.

assessment—coal, geothermal resources, petroleum (oil and gas), and uranium. Due to the lack of rocks from the Cretaceous period, there is no potential for coal resources on the McGregor Range. Geothermal resource potential on McGregor Range ranges from no to low to high potential. Some geothermal exploration took place in the area beginning in 1997 (BLM 2003a; U.S. Army 2001a). Geothermal resources may be high temperature or of commercial proportion (temperatures greater than 194° F [90° C] and capable of generating commercial amounts of electricity) or low temperature (less than 194° F [90° C]) and used for space heating, heating domestic water, and desalinization. No Known Geothermal Resource Areas have been identified in Otero County; however, anomalously warm springs and wells with thermal gradients exceeding 86° F (30° C) per kilometer have been recorded in the area, indicating geothermal potential (BLM 2003a). The area near the McGregor Base Camp has a high potential for low to high temperature geothermal resources, and the western portion of the McGregor Range has a moderate potential for low temperature geothermal resources. Geothermal potential for the other portions of the McGregor Range is low (U.S. Army 1998a,c). The RMPA/EIS for Federal Fluid Minerals Leasing and Development in Sierra and Otero Counties (BLM 2003) identifies McGregor Range Camp as having high potential for geothermal development, the western part of the Range has a low potential, while the remaining part of the Range has no potential.

The favorability of an area to contain commercial quantities of oil and gas depends on several factors— the presence and volume of a source rock, the degree of maturation of the source rocks, the availability of reservoir rocks, and the stratigraphic or structural features to trap the migrating oil and gas. Paleozoic source rocks underlie the Tularosa Basin; however, exploration in the area has not been successful. Ten oil and gas exploration wells were drilled on the McGregor Range, primarily in the mid-1920s through the mid-1950s. One well was drilled in 1978. All of these were dry wells and have been plugged and abandoned (BLM 2003a). In the 1980s, several oil and gas exploration wells were drilled in the vicinity of the McGregor Range but all of the wells were dry. A few wells in the area had minor oil and gas shows. The most successful were drilled in the mid-1970s at the northern part of Tularosa Basin near Three Rivers where noncommercial volumes of natural gas were recovered from the Pennsylvanian and Permian strata. Most oil and gas shows have been from the Tularosa Basin and into the Pennsylvanian, Permian, and some Mesozoic rocks. Exploration drilling in the Otero Mesa–Diablo Platform area has not been very successful. The Silurian and Permian rocks have yielded some minor shows of oil and gas. The overall geology of the south-central New Mexico and west Texas area has not been particularly favorable for large accumulations of oil and gas (Black 1975; King and Harder 1985).

The RMPA/EIS for Federal Fluid Minerals Leasing and Development in Sierra and Otero Counties (BLM 2003a) indicates that 63 exploratory petroleum wells had been drilled in Otero County. Of those drilled, 17 had shows of oil or gas. Forty-four of the wells drilled were Federal mineral estate. Most of the wells were dry or have been plugged and abandoned. In 1997, a significant exploratory well was drilled on Otero Mesa to the east of McGregor Range (Harvey Yates #1Y Bennett Ranch), which yielded a show of gas indicating that commercial-quality gas may be found in the Pennsylvanian rocks of the McGregor Range (BLM 2003a; U.S. Army 1998a). This discovery to the east of the McGregor Range prompted new exploratory interest in the Otero Mesa area. Three Applications for Permit to Drill were filed in August 2002 for the Crow Flats area, which is approximately 40 miles east of McGregor Range (Torrez 2002). Two of the wells were drilled; only one had a small show and both have been abandoned. The third well has not been drilled. The oil resource potential of the McGregor Range varies from low to moderate (refer to Table 3-3).

Uranium resource potential is rated as no to low on the McGregor Range (refer to Table 3-3). Uranium minerals have been reported from several areas on or near McGregor Range, but no significant deposits are known to occur on the Range. The demand for uranium is currently very low and is expected to remain as such (McLemore and Chenoweth 1989).

3.7 SOILS

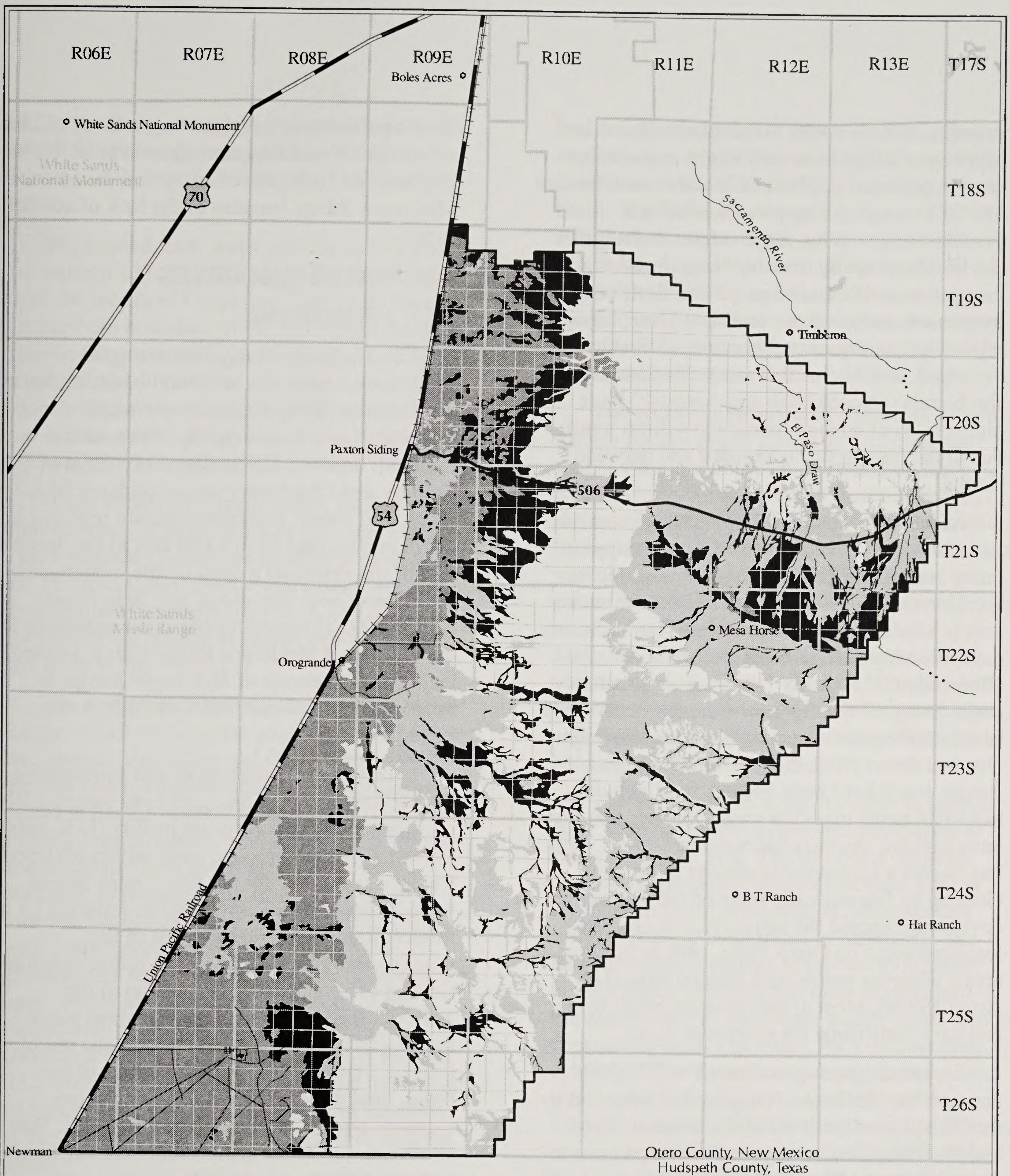
The U.S. Department of Agriculture's (USDA's) NRCS and the Forest Service have mapped most of McGregor Range. The soils were mapped at various levels of detail and are shown as series, complexes, and associations in the Soil Survey of Otero Area, New Mexico – Parts of Otero, Eddy, and Chaves Counties (USDA, SCS and Forest Service 1981). In the late 1990s, the NRCS and Forest Service began a new survey to update and refine the mapping of the soils presented in the 1981 Otero County Survey. The Soil Survey of the Fort Bliss Military Reservation, New Mexico and Texas (NRCS 2003) was issued in September 2003 and included new and updated information on McGregor Range. The draft and final soil surveys were reviewed for preparation of this assessment.

The Soil Erosion Hazard Potential map (Map 3-4) was derived from the soil map units and the erosion hazard potential of those soil series in the map units. A map of the soil series was made available in digital format for this evaluation. The new soil survey includes ratings of the soils according to limitations or probabilities that affect their suitability for military operations. The soils were rated for bivouac areas, helicopter landing zones, and excavations for fighting positions. The new survey also presents soil trafficability ratings, which are related to the capacity of the soils to support military vehicles. These ratings tables, in conjunction with the detailed soil series map, may be used to reduce or prevent adverse impacts from military operations to soils on McGregor Range (NRCS 2000, 2003b).

The soils within McGregor Range are typically loams, silty clay loams, sandy gravelly loams, gypsiferous loams, or cobbly loams, and fine sands and silts. Rock outcrop is common. Windblown sediments from exposed lakebeds are common. The soils of McGregor Range may be separated into two general categories based upon the following physiographic positions: (1) valley and basin floors and (2) mountains, mountain foot slopes, and escarpments. Soils in the valleys and basins are shallow to deep, nearly level to very steep, and well-drained to excessively drained soils that formed in alluvium, alluvium modified by wind, and eolian material (USDA, SCS and Forest Service 1981). Most of the basin floors are covered by coppice dunes (eolian deposits trapped by mesquite thickets). These soils are found mainly in the Tularosa Basin. The major soil complexes and associations that occur in the valleys and basins include Tome-Mimbres, Nickel-Tencee, and Pintura–Doña Ana. The valleys and basins are used mainly for grazing, wildlife habitat, and military uses. Military uses include ground-troop training, wheeled- and tracked-vehicle maneuvering, and missile launching (see Section 3.4.2.1 for more information). On-road vehicle training is conducted on the 1,002 miles of roads that cover 2,673 acres of McGregor Range (U.S. Army 1999a). Land surfaces on mountains, mountain foot slopes, and escarpments are either rock outcrops or shallow to deep, well-drained, and nearly level to extremely steep soils that formed in alluvium and colluvium mostly derived from limestone and dolomite (USDA, SCS and Forest Service 1981). These areas are found mainly in the Sacramento and Hueco Mountains, and on Otero Mesa. These soils are used mainly for livestock grazing, wildlife habitat, and military uses. In the mountainous areas, military uses are limited because of steep slopes and rough terrain, although some vehicle maneuvering and ground-troop training does occur.

Soil erosion rates and the susceptibility of a soil to increased erosion, when disturbed, are based on a variety of factors including soil type, grade and length of slope, climate, and vegetation cover. Soil Erosion Hazard Potential (refer to Map 3-4) shows those soils that are particularly susceptible to increased wind and/or water erosion when the surface is disturbed. Wind and water erosion are currently the most significant processes affecting soils on the McGregor Range.

Erodibility of soils varies considerably across McGregor Range. Sandy soils are extremely susceptible to wind erosion; loamy sands are highly erodible and capable of supporting a productive vegetative cover. Soils with large amounts of clay are moderately erodible and capable of supporting vegetation. Loamy soils with less than 35 percent clay are slightly erodible, and stony or gravely soils and rock outcrops are not generally subject to erosion. The


R06E
R07E
R08E
R09E
R10E
R11E
R12E
R13E
T17S
T18S
T19S
T20S
T21S
T22S
T23S
T24S
T25S
T26S
Boles Acres
White Sands National Monument
White Sands National Monument
70
Sacramento River
Timberon
El Paso Draw
Paxton Siding
506
54
White Sands Missile Range
Mesa Horse
Orogrande
B T Ranch
Hat Ranch
Union Pacific Railroad
Newman
Otero County, New Mexico
Hudspeth County, Texas

Soil Erosion Hazard Potential

McGregor Range RMPA/EIS

October 21, 2004

Legend:

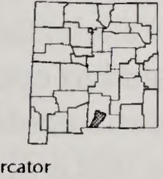
Erosion Potential:

- ■ High Water Erosion Potential
- ▨ High Wind Erosion Potential
- ▒ Moderate Erosion Potential
- □ Low Erosion Potential

General Reference:

- Primary Roads
- Secondary Roads
- County Roads
- Paved or Military Restricted Roads
- Public Land Survey System
- Union Pacific Railroad
- Streams
- ○ Geographic Place

Location in New Mexico



Universal Tranverse Mercator
Zone 13, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

SCALE 1 : 500,000

50000 0 FEET

8 0 MILES

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. Spatial information may not meet National Map Accuracy Standards. This information may not be updated without notification.

SOURCE: Base Map information: BLM, Las Cruces Field Office, 2001
Soils: Fort Bliss Military Reservation, Dale G. Sprankel,
Natural Resources Conservation Service

URS

Map 3-4

majority of steep rocky hills and mountains on McGregor Range have only slight-to-moderate erosion potential (USDA, SCS and Forest Service 1981), although during periods of severe thunderstorm activity, large volumes of runoff can build up rapidly, causing flash floods that may produce rills and large gullies. Soils covered by grasses, such as those on Otero Mesa, have relatively low amounts of erosion, unless they are disturbed, while areas that are predominantly shrublands (creosotebush and mesquite) have higher rates of erosion (particularly from wind) due to the large areas of exposed soil between shrubs.

Accelerated erosion is a problem in several areas of McGregor Range. Soils in the coppice dunes area of the Tularosa Basin are subject to wind erosion. Most of the soil movement in this area is localized from dune to dune, but on windy days, blowing dust particles rise to the atmosphere (U.S. Army 1999a). This process could lower air quality; however, this occurrence is not unlike other desert areas where blowing dust is a desert phenomenon. On McGregor Range, roads have been constructed (including historical ranch roads) in such a manner that they have become channels for rainwater runoff. This has caused a considerable amount of erosion. Grazing by livestock has reduced the vegetative cover and exposed the soil surface to erosion in localized areas on Otero Mesa, such as holding areas, watering points, and mineral licks (U.S. Army 1999a). Most of the areas are small in size and have little slope for erosion to occur.

Livestock grazing is allowed on 271,000 acres on the McGregor Range and is managed by the BLM under the 1990 MOU between BLM and Ft. Bliss, Concerning the Policies, Procedures, and Responsibilities Related to Land Use Planning and Resource Management of McGregor Range (Livestock grazing is addressed specifically in Section 3.13). Qualitative observations during the BLM's 1979 field season indicated that near water facilities the soil is compacted by livestock over areas as large as 10 acres (U.S. Army 1999a).

As defined by the USDA, prime farmland soils have characteristics that are best suited for the economic production of sustained high crop (food, seed, forage, fiber, and oilseed) yields, have a sufficiently long growing season, and have a dependable and adequate water supply (BLM 2003a). Currently, there is no prime farmland on McGregor Range because of the lack of a water supply.

3.8 WATER RESOURCES

3.8.1 Groundwater

The McGregor Range lies along the southeastern edge of a structural basin known as the Tularosa Basin. Groundwater within the Tularosa Basin occurs chiefly in the central basin-fill deposits. These deposits consist of Tertiary and Quaternary unconsolidated lake, playa, and fluvial sediments that are reported to range in thickness from 8,000 feet in the deepest part of the structural trough on the western side of the basin to near zero along the Otero Mesa escarpment. Thickness of basin-fill sediments in the vicinity of McGregor Range Camp, located in the southwest corner of McGregor Range, is estimated to be at least 700 feet (U.S. Army 1998d).

Groundwater resources in and surrounding the McGregor Range have not been significantly developed, due to poor water quality (U.S. Army 1998d). Currently, groundwater within McGregor Range is used only for the desert units and as back-up for livestock and wildlife watering on the mesa (Christensen 2002a). Most of the groundwater beneath McGregor Range is saline. Groundwater in the eastern portion of the Tularosa Basin contains total dissolved solids ranging from 1,000 to 4,000 milligrams per liter (mg/L). Further out toward the center of the basin, total dissolved solids concentrations increase, up to 35,000 mg/L (BLM 1999). The dominant ions in the groundwater are calcium, sodium, sulfate, and chloride.

Two small areas of fresh groundwater exist in the Tularosa Basin. One area is located along the western margin of the basin, bordering the Franklin Mountains, and extending southward into El Paso County, Texas. This area of fresh groundwater is estimated to contain approximately 2.6 million acre-feet of fresh groundwater in a zone that thins from west to east, ending along a north-south line that passes near the southwest corner of McGregor Range. Depth to groundwater along the western edge of

McGregor Range ranges from approximately 50 to 600 feet below ground surface (U.S. Geological Survey [USGS] 2002; U.S. Army 1998d).

The second fresh water aquifer occurs along the western edge of the Sacramento Mountains, from the mouth of Grapevine Canyon to beyond the northern boundary of the McGregor Range. This fresh water aquifer, consisting of coarse, poorly sorted alluvial fan sediments, occurs in a zone about 3 miles wide along the mountain front and is estimated to range from 0 to 1,400 feet in thickness (U.S. Army 1998d).

In the vicinity of Davis Dome, located approximately 5 miles north of the New Mexico–Texas boundary, along the southeastern edge of the Tularosa Basin, geothermal groundwater at temperatures ranging from 180 to 185 degrees Fahrenheit are present at depths of 400 to 600 feet (U.S. Army 1999a).

The northeastern one-third of the McGregor Range, which includes the southern slopes of the Sacramento Mountains and Otero Mesa, lies in the Salt Basin. Groundwater in the Salt Basin occurs at depths of 500 feet and more (U.S. Army 1998d). Data available from low-yielding stock and domestic wells in the Paleozoic and Mesozoic carbonate rocks of the Salt Basin indicate that groundwater was brackish to saline with limited potential for development of groundwater resources. Fresh water occurs in upper valley alluvial sediments south of the Sacramento Mountains, where groundwater conditions may be similar to Grapevine Canyon (U.S. Army 1998d). Most of the wells developed on McGregor Range are developed in limestone, at varying depths, and are good sources of fresh water.

3.8.2 Surface Water

McGregor Range is comprised of numerous, typically not integrated, watersheds and drainages. Topographically, McGregor Range lies within the Central Closed Basins, as defined by the New Mexico Environment Department (NMED) (New Mexico Water Quality Control Commission [NMWQCC] 1975). This management region is divided between the Tularosa sub-basin on the west and the Salt sub-basin on the south. The divide for the two sub-basins is the west rim of Otero Mesa and the southwestern rim of Sacramento Canyon, with the Sacramento River draining into the Salt sub-basin. The Tularosa sub-basin adjoins McGregor Range on the west. There are no topographically defined drainages that extend into the center of the Tularosa sub-basin from McGregor Range; however, very minor amounts of water draining off of U.S. Highway 54 and adjacent land might flow onto land within that sub-basin.

The BLM has maintained a network of rain gauges on McGregor Range to document the spatial variation of the precipitation on the Range. Otero Mesa generally receives about 11 inches of precipitation per year while the west-facing slopes range from 9.16 to 18.31 inches per year. The data reflect the upslope increase in rainfall with surface elevation, with annual rainfalls on the slopes of the Sacramento Mountains from 14.36 to 18.31 inches. This variation produces large changes in both runoff and soil moisture throughout McGregor Range and diverse natural resource management needs between watersheds.

The Tularosa sub-basin is closed to surface flow, with no natural hydraulic conveyance of water out of the area. The sub-basin includes numerous ephemeral washes that flow only in response to direct precipitation. Most surface water is quickly evaporated or infiltrates. The Salt sub-basin is similar in surface topography, but the higher precipitation rates experienced by the eastern half of McGregor Range create a more dependable source of water. As a consequence, ephemeral flows are more actively captured and used in the Salt sub-basin–directed washes. Several of the drainages within the Salt sub-basin end in playas, ephemeral ponds that are supplied by rainfall runoff, and last until evaporation eliminates surface water.

The Sacramento River flows from the Sacramento Mountains southeasterly across the northeast corner of McGregor Range. The river and tributaries are perennial in some parts of the off-site watershed; however, it becomes a dry wash in the reach crossing McGregor Range. The USGS stream gaging station at Sunspot, about 13 miles north-northeast of Culp Peak, recorded daily (Period of Record, 1984-07-10 to 1989-09-30) and peak flows (Period of Record, 1984-08-

14 1989-08-19). The average daily flow in the last full year of record (1988) was 2.52 cubic feet per second and the highest peak recorded was 22.0 cubic feet per second on August 14, 1984 (USGS 2002). There are no other stream gaging stations in the Planning Area. It is possible that the Sacramento River was intermittent-to-perennial over the reach crossing the Range at some point in the past.

Across McGregor Range, 1,228 dry washes and eleven ephemeral ponds and playas were distinguished by the U.S. Army Corps of Engineers (COE) as potential Waters of the U.S. (Malanchuk 2002). The COE also conducted a wetlands designation on McGregor Range that collected data on plants, soils, and shallow groundwater conditions evidencing recent inundation, as defined by the COE wetlands delineation guidance (Federal Interagency Committee for Wetland Delineation 1989). This effort did not culminate in an external report after the COE Regulatory Branch decided that they were outside of jurisdiction under Section 404 of the Clean Water Act and further study was not initiated. Where channelized, these drainage systems are designated as "arroyo riparian areas" in the Fort Bliss Integrated Natural Resource Management Plan (U.S. Army 2001a) and identified as surface water resources that were not fully studied. Playas and arroyo riparian areas are also important as they help preserve the diversity and richness of plant and animal species, and offer refuge to migratory species.

In addition, there are numerous livestock watering impoundments and structures scattered across McGregor Range. Some surface water is imported onto McGregor Range by the BLM from springs and diversions within the off-site, upper Sacramento River watershed. The water is delivered by pipeline to watering structures located throughout the grazing units. The U.S. Army owns surface water rights, granted by the State of New Mexico, to 60,000 gallons per day from the Sacramento River and 50,000 gallons per day from Carrizo Spring, located near the village of Timberon. Additional flow is diverted from the Sacramento River and has been delivered by gravity—feed pipeline as municipal drinking water to the village of Orogrande.

As part of the 1980 Environmental Impact Statement on Grazing Management in the McGregor EIS Area (BLM 1980), BLM calculated peak runoff discharges for representative soil types, topography, and land use. The calculation was done using the SCS-curve number method. Peak discharges of the 100-year return interval flood ranged from about 1,300 cubic feet per second on the mesa drainages to about 2,700 cubic feet per second in the foothills of the Sacramento Mountains.

Quality of the surface water varies considerably, although historic data suggest that it is adequate for livestock and wildlife use (BLM 1988a). Sediment yields range from 0.3 to 0.5 acre-feet/square mile/year. The water is described as hard and alkaline, with measured hardness ranging from 130 to 380 mg/L. Total dissolved solids range from 190 to 2040 mg/L and turbidity is between 0 and 60 Formazin turbidity units. Nitrate falls between 0.5 and 2.0 mg/L and coliform bacteria can range as high as 94 colony forming units per 100 milliliters (BLM 1988a). The U.S. Environmental Protection Agency (EPA) STORET database indicates that NMED took several samples for chemical analysis from the Sacramento River during 1987, above and below Timberon, below Sacramento Lake, and at the USGS gage 08492900 (EPA 2002). As evidence of the generally good water quality on McGregor Range, no waterbodies in the Salt Sub-basin, including the Sacramento River, are listed as impaired or threatened in the 2002 State Water Quality Report.

Under the Clean Water Act, nonpoint-source pollution control is a responsibility of the individual states under Section 319 and each state is obligated to provide a nonpoint-source pollution assessment and management plan. In January 2000, EPA approved New Mexico's nonpoint-source assessment and management plan. The plan assigns regulatory authority to NMED and compliance with the plan is judged by a series of runoff control methodologies termed best management practices (BMPs). These BMPs can range over a variety of engineering, public outreach, and administrative controls and cited examples are similar to BMPs used in other states and tribes.

Under the State Nonpoint Source Management Plan (NMWQCC 1998) BLM is charged with a significant implementation responsibility. Specifically, the document describes an MOU confirming that BLM is the agency designated by the State of New Mexico responsible for the prevention of nonpoint-source pollution on and from public land (NMWQCC 1998). Under the State plan, nonpoint-source control on BLM lands is to be accomplished through the land use planning process. For this reason, the McGregor Range RMPA is the primary document for BLM compliance with the New Mexico nonpoint-source management plan. In addition, U.S. Department of the Interior (USDI) departmental manual, part 520 states the policy on wetlands preservation. It appears that a need for an individual nonpoint-source watershed management plan, in basic agreement with EPA and NMED guidance, is required for McGregor Range.

Thus, the introduction of nutrients, sediment, POLs, and other nonpoint-source pollutants to the washes of McGregor Range would impact the responsibilities of the BLM under state law and USDI policy, without the need for designation of these channels as Waters of the U.S. In addition to nonconformity with the objectives of the Fort Bliss INRMP.

No data have been published on nonpoint-source pollutant loadings on the range. Road crossings of washes and grazing would be expected to generate the most significant source of nonpoint-source pollution, but it is not clear if they currently cause problems. Evaluation of the effects of grazing on the range is conducted according to the BLM New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing; it is expected that the use of these standards and guidelines for the grazed lands on the Range would result in excellent control of nonpoint-source pollution in general, and limit the erosive and sedimentation damage to the arroyo riparian areas. There currently are no specific procedures for the construction and maintenance of road crossings on the Range, although BLM standards exist and could be adapted for joint use by BLM and Fort Bliss.

3.9 AIR QUALITY

The air quality in the McGregor Range area is generally good and meets the State and Federal ambient air quality standards. Incidents of elevated particulate concentrations do occur, but are attributed to wind-blown dust. No extremely high quality airsheds, such as Class I areas, are located in the McGregor Range area.

Currently, the State of New Mexico does not have a monitoring site in the Range area. The closest site was located in La Luz, approximately 5 miles north of Alamogordo in Otero County. This monitoring station was closed in October 2001 and only recorded data for particulate matter of 10 microns or less (PM_{10}). The most recent data (October 2001) from the La Luz site lists the highest 24-hour PM_{10} concentration recorded in the past year as 66 micrograms per cubic meter ($\mu g/m^3$). The second highest 24-hour value is 57 $\mu g/m^3$. The average of the 10 highest readings is 42 $\mu g/m^3$ (EPA 2001) which is well below the National Ambient Air Quality Standard (NAAQS) of 150 $\mu g/m^3$ for a 24-hour average.

While there are monitoring sites within El Paso, the topography of El Paso is substantially different from that of the Range. For that reason, any monitoring data available in El Paso would not be representative of the air quality conditions that would be expected at the range, and has not been considered in this analysis.

High particulate (PM_{10}) concentrations occasionally occur in the McGregor Range area, similar to other areas of the State of New Mexico, and can be attributed to wind-blown dust. This blowing dust contributes to air pollution events especially during the windy spring months. Dry, sparsely vegetated soils and unpaved roads are the main sources of these particulates. Polluted air from the urban areas of Las Cruces, New Mexico; El Paso, Texas; and Juarez, Mexico has the potential to travel north up the Rio Grande Valley and via the Tularosa Basin. These areas have generally poor air quality with portions of El Paso classified as nonattainment for PM_{10}, ozone, and carbon monoxide. Events of poor air quality due to transport of urban pollutants are more likely to occur in the winter when temperature inversions suppress atmospheric dispersion.

In 1975, the U.S. Army completed a study of air quality as part of an EIS as documented in the MSA for McGregor Range, dated 1988. In the 1975 study, two pollutant monitoring stations within McGregor Range (locations not reported) were used to establish ambient air quality data for the region. During the test period, sulfur dioxide, nitrogen dioxide, and carbon dioxide readings were better than the applicable New Mexico Ambient Air Quality Standards. Some readings of total suspended particulate matter were high, but this was attributed to naturally occurring winds and blowing dust. Airborne heavy metals were analyzed in particulate samples and found to meet health-based guidelines. High levels of photochemical oxidants such as nonmethane hydrocarbons were recorded at the sites. Because no range activities were being conducted at the time of testing that could account for these observations, it was postulated that these pollutants were transported into the McGregor Range area from the large urban areas of El Paso, Texas and Juarez, Mexico.

3.10 VEGETATION

Three major plant community types were identified for McGregor Range including desert grasslands, shrublands, and woodlands. Shrublands occupy the greatest area of McGregor Range (349,830 acres) followed by desert grasslands (317,879 acres) and then woodlands (7,840 acres). Each of these can be further subdivided into vegetation types, described below. Factors such as elevation, topography, soil type, temperature, precipitation, and human influence have a direct effect on the distribution of vegetation on McGregor Range.

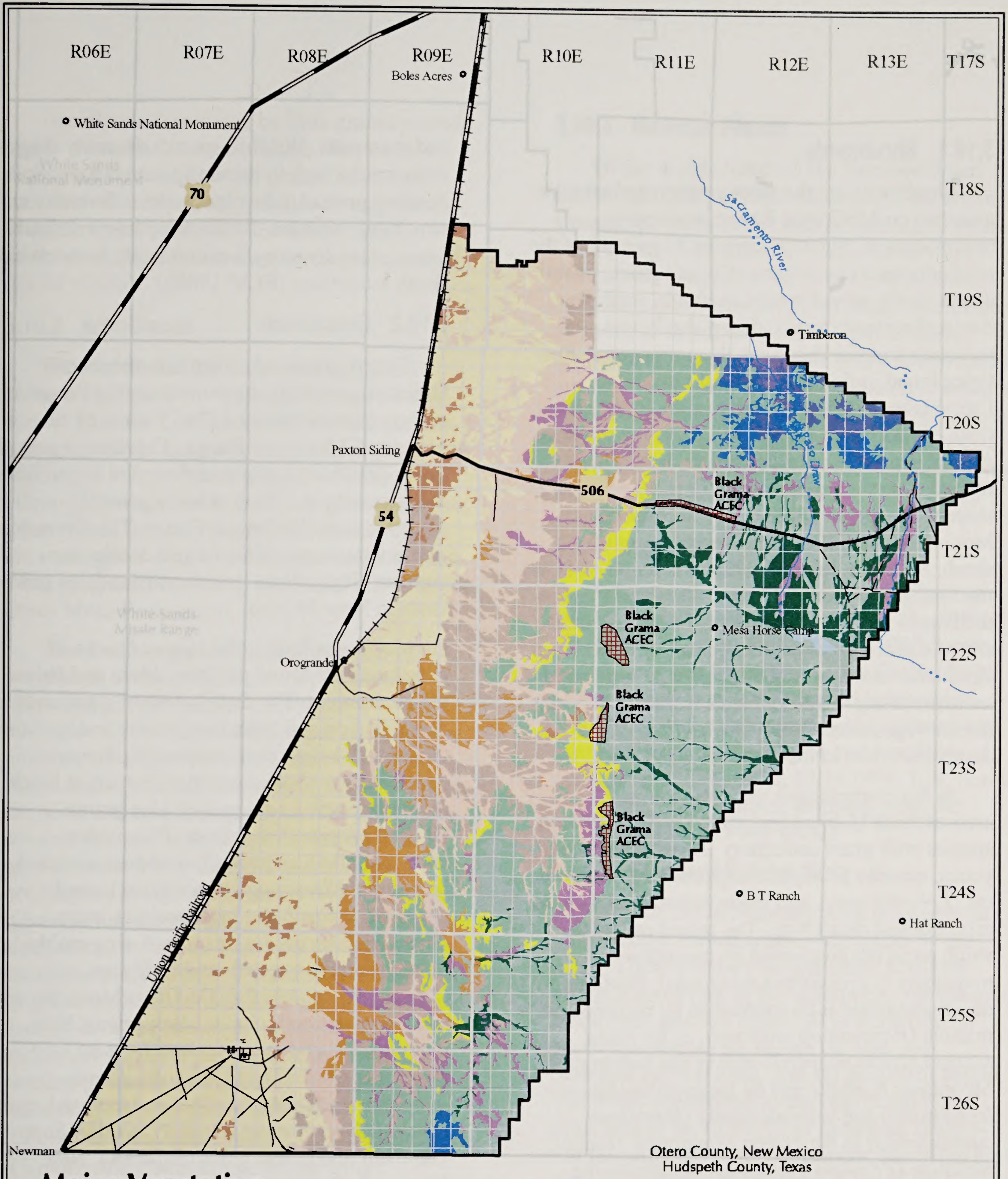
Major physiognomic vegetation types on McGregor Range are presented on Map 3-5, Major Vegetation, and are discussed below. The acreage of each vegetation type on McGregor Range, exclusive of unclassified Forest Service land and U.S. Army land, is provided in Table 3-4 and is derived from GIS data maintained by the BLM.

TABLE 3-4
ACREAGES OF MAJOR VEGETATION TYPES WITHIN McGREGOR RANGE

Major Vegetation Type	Acres
Shrublands	
Creosotebush	77,601
Mixed Desert Shrub	62,571
Mixed Mountain Shrub	9,901
Foothills Desert Shrubland	15,643
Arroyo Desert Shrub	27,896
Mesquite Coppice Dunes	156,218
Desert Grasslands	
Basin Desert Grassland	
Basin Desert Grassland (basin floor)	9,186
Middle Grassland (basin draw)	26,070
Foothills Grassland	142,103
Mesa Grassland	
Mesa Grassland (ridges and slopes)	110,347
Draw Grassland (draws)	29,375
Ponded Grassland (Mary Toy)	798
Woodlands	
Piñon-Juniper Woodland	
Piñon-Juniper Woodland (slopes and ridges)	1,184
Piñon-Juniper Savannah (canyon and bottoms)	6,656
Total Acres	675,550*

SOURCE: Bureau of Land Management 2001c

NOTE: *The acreages used for analysis purposes reflect the best available GIS data maintained by BLM.


R06E
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T17S
T18S
T19S
T20S
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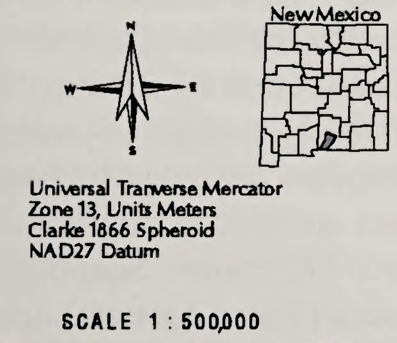
T22S
T23S
T24S
T25S
T26S
Boles Acres
White Sands National Monument
70
Sacramento River
Timberon
Paxton Siding
506
54
Black Grama ACEC
Sacramento Draw
Black Grama ACEC
Mesa Horse Camp
Orogrande
Black Grama ACEC
Black Grama ACEC
B T Ranch
Hat Ranch
Union Pacific Railroad
Newman
Otero County, New Mexico
Hudspeth County, Texas

Major Vegetation

McGregor Range RMPA/EIS

October 21, 2004


Location in New Mexico
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MILES

Universal Tranverse Mercator
Zone 13, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

Legend:

Vegetation Types:

- Arroyo Desert Shrub
- Basin Desert Grassland
- Creosotebush
- Draw Grassland
- Foothills Grassland
- Foothills Desert Shrubland
- Mesa Grassland
- Mesquite Coppice Dune
- Middle Grassland
- Mixed Desert Shrub
- Mixed Mountain Shrub
- Pinon-Juniper Savannah
- Pinon-Juniper Woodland
- Ponded Grassland
- Area Not Classified

Special Management Areas:

- ▨ Area of Critical Environmental Concern

General Reference:

- Primary Roads
- Secondary Roads
- County Roads
- Paved or Military Restricted Roads
- Public Land Survey System
- Union Pacific Railroad
- Streams
- ● Geographic Place

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. Spatial information may not meet National Map Accuracy Standards. This information may not be updated without notification.

SOURCE: Base Map Information: BLM, Las Cruces Field Office, 2001
Vegetation: BLM, Las Cruces Field Office, 2001

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Map 3-5

3.10.1 Shrublands

Shrublands are the most extensive plant communities on McGregor Range, occupying approximately 349,830 acres, or 52 percent of the total acreage of vegetation. Creosotebush, mixed desert shrub, mixed mountain shrub, foothills desert shrubland, arroyo desert shrub, and mesquite coppice dunes are the major vegetation types found in this plant community. Creosotebush is found mostly in the lower elevations of McGregor Range. Mixed desert shrub is generally present on rocky points, knolls and rugged desert mountains with 20 to 40 percent slopes. The upper slopes of the Sacramento Mountains foothills contain mixed mountain shrub. Foothills desert shrubland is found on both the foothills of the Sacramento Mountains and in the Hueco Mountains. Arroyos formed by accelerated storm erosion make up another type of shrubland found on McGregor Range. Increased moisture along these drainages leads to taller and denser vegetation. Finally, mesquite coppice dunes are found in the Tularosa Basin.

In the creosotebush vegetation type, creosotebush (*Larrea tridentata*) is the dominant species with grass understory. A codominance of yucca, ocotillo (*Fouquieria splendens*), Mormon tea (*Ephedra spp.*), and creosotebush make up the mixed desert shrub type. The mixed mountain shrub areas are dominated by mountain mahogany (*Cercocarpus montanus*). Foothills desert shrubland is characterized by ocotillo and mariola (*Parthenium incanum*), or by viscid acacia (*Acacia noevernicosa*) in the Sacramento Mountains foothills and by lechuguilla (*Agave lechuguilla*) and sideoats grama (*Bouteloua curtipendula)* in the Hueco Mountains. Honey mesquite (*Prosopis glandulosa*) dominates the mesquite coppice dunes. Portions of these dunes are also inhabited by shinnery oak (*Quercus havardii*), rather than mesquite. The arroyo desert shrub areas offer the largest variety of vegetation due to the increased moisture. Species that characterize this vegetation type include the following: brickell bush (*Brickellia sp.*), whitethorn (*Acacia constricta*), desert willow (*Chilopsis linearis*), seep willow (*Baccharis salicifolia*), littleleaf sumac (*Rhus microphylla*), Apache plume (*Fallugia paradoxa)*, and creosotebush.

Vegetation types within this community provide various habitat values for birds, reptiles, and mammals. Wildlife species diversity ranges from low to high in these vegetation types depending primarily on plant species diversity and structural variation. At the arroyo desert shrub areas, plant diversity is second only to the mixed shrub mountains (BLM 1988b).

3.10.2 Grasslands

Desert grasslands constitute the second largest major plant community on the Range, and occupy approximately 317,879 acres or 47 percent of McGregor Range. This area is part of a larger grassland complex referred to as the Otero Mesa grassland, which extends generally eastward from McGregor Range. The Otero Mesa area contains one of the largest contiguous remnant Chihuahuan desert grasslands on public lands in New Mexico.

On McGregor Range, the largest blocks of grasslands are found on Otero Mesa and below the escarpment. The distribution of grasslands is dependent on soil type, topography and moisture. Grasslands below the escarpment often are dominated by short grass species such as black grama (*Bouteloua eriopoda*), blue grama (*Bouteloua gracilis*), tobosa (*Pleuraphis muticus*), alkali sacaton (*Sporobolus airoides*), burrograss (*Sceropogon brevifolius*), sand dropseed (*Sporobolus cryptandrus*), mesa dropseed (*Sporobolus flexuosus*), ring muhly (*Muhlenbergia torreyi*), and fluffgrass (*Dasyochloa pulchella*). On Otero Mesa, the species composition includes black grama, blue grama, hairy grama (*Bouteloua hirsute*), threeawns (*Aristida sp.*), sideoats grama, mountain muhly (*Muhlenbergia Montana*), spike muhly (*Muhlenbergia wrightii*), needle (*Stipa speciosa)* and thread grass (*Stipa sp.*), New Mexico feathergrass (*Hesperostipa neomexicana)*, and tobosa. On more sandy soils, the species composition may include sand dropseed and alkali sacaton.In areas where moisture is less limited, purple threeawn (*Aristida purpurea*), and sand shinnery oak (*Quercus havardii*) may form a tall grass community. Torrey yucca (*Yucca torreyi*), soaptree yucca (*Yucca elata*), and creosotebush are also found on the gravelly footslopes and piedmont of the Sacramento and Hueco Mountains. Soaptree yucca and banana yucca (*Yucca baccata*) occur within portions of Otero Mesa on low tablelands beneath the mesa.

Grasslands dominated by blue grama provide highly desirable livestock forage. The wide diversity of plant life in the grasslands areas contribute directly to the wildlife found here. Wildlife species diversity for these areas is moderate to high for reptiles, birds and mammals (BLM 1988b).

3.10.3 Woodlands

Woodlands are the least extensive plant community found on McGregor Range (7,840 acres). They are confined to the foothills of the Sacramento Mountains in the northern portion of McGregor Range. Piñon-juniper woodland and piñon-juniper savannah are the major vegetation types within the woodlands community. There are some small stands of oaks (too small to form a mapping unit) occurring in several draws on the Otero Mesa Escarpment.

The dominant overstory components in the woodlands community are a combination of piñon and juniper species (*Juniperus monosperma* or one-seeded juniper and alligator juniper or *J. deppeana*). Mountain mahogany, desert ceanothus, and desert buck brush dominate the north and east-facing slopes. The understory consists primarily of grasses, including grama grasses in the lower foothills and muhlys or needlegrass at higher elevations. Wavyleaf oak (*Quercus undulatea*) and gray oak (*Q. grisea*) are also present in several draws on the Otero Mesa escarpment. Piñon-juniper savannah is dominated by grass species with scattered piñon and juniper that are invading these areas. The shrub understory found in the woodlands community consists primarily of mountain mahogany, desert ceanothus, Guadalupe rabbitbrush (*Chrysothamnus. spathulatus*), rubber rabbitbrush (*C. pulchellus*), skunkbush sumac (*Rhus trilobata*), and prickly pear (*Opuntia spp.*) and cholla (*Opuntia spp.*). Several annual and perennial forb species are also represented.

While the acreage of woodlands is the smallest among plant communities on McGregor Range, woodlands generally contain a high plant species diversity and high structural diversity. Species diversity is high for birds and mammals (BLM 1988b).

3.10.4 Noxious Weeds

Of the weeds listed on the Noxious Weed List for the State of New Mexico and for Otero County, the ones of immediate concern to BLM with known populations in Otero County are African rue (*Peganum harmala*) and Russian knapweed (*Acroptilon repens*). Malta starthistle (*Centaurea melitensis*), whitetop (*Cardaria draba*), and yellow starthistle (*Centaurea repens*) are other noxious weed species that have invaded BLM lands administered by the Las Cruces Field Office, mainly along highway rights-of-ways (BLM undated). Malta starthistle and African rue are known on McGregor Range (Smith 2002).

3.11 WILDLIFE

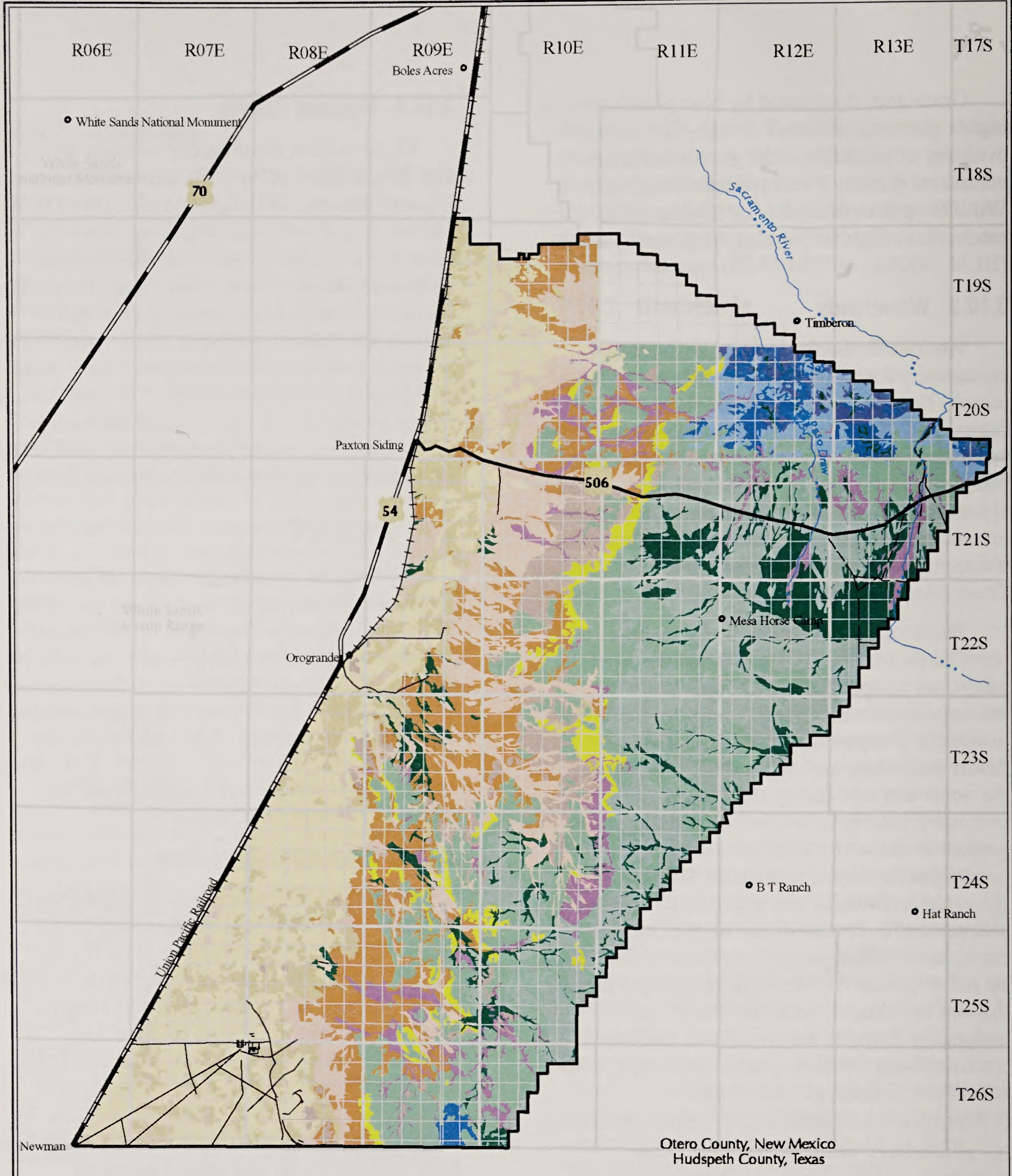
Information regarding wildlife habitats on McGregor Range was obtained from the 1988 MSA for McGregor Range (BLM 1988a) with updated mapping from BLM, Las Cruces Field Office. Wildlife species lists and information on wildlife species distribution and abundance was compiled from existing BLM and Fort Bliss documents (BLM 1988a; BLM 1999; U.S. Army 1999a) and from updated mapping from the BLM, Las Cruces Field Office.

3.11.1 Standard Habitat Sites

Wildlife in the Planning Area is associated with specific habitat sites as identified by the BLM. These standard habitat sites (SHS) are grouped according to the vegetation type present, landforms, and soil types. SHSs occurring on McGregor Range are shown on Map 3-6, Standard Habitat Sites, and are described below. The SHSs correspond to the vegetation types presented in Section 3.10 as shown in Table 3-5. For the purposes of this document, the SHSs have been combined into five groups based on similarities between SHSs.

3.11.1.1 Grasslands

The SHSs that have been combined under this broader category are Grass Flat, Grass Hills, Grass Mountains, and Grass Rolling Upland. The grasslands habitat sites cover approximately 291,220 acres on McGregor Range (note: acreage derived from GIS data). Grasslands generally are associated with the large flat mesa tops and broad valley areas.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T23S
T24S
T25S
T26S
Boles Acres
White Sands National Monument
70
Sacramento River
Timberon
Paxton Siding
506
54
Pasto Draw
Mesa Horse Camp
Orogrande
B T Ranch
Hat Ranch
Union Pacific Railroad
Newman
Otero County, New Mexico
Hudspeth County, Texas

Standard Habitat Sites

McGregor Range RMPA/EIS

October 21, 2004

Location in New Mexico

Universal Tranverse Mercator
Zone 13, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

SCALE 1 : 500,000

Legend:

Standard Habitat Sites:
- Arroyo
- Creosote Hills
- Creosote Rolling Upland
- Grass Flat
- Grass Hills
- Grass Mountains
- Grass Rolling Upland
- Mesquite Rolling Upland
- Mesquite Sand Dunes
- Mixed Shrub Hills
- Mixed Shrub Mountains
- Mixed Shrub Rolling Upland
- Pinon-Juniper Grass Mountains

General Reference:
- Primary Roads
- Secondary Roads
- County Roads
- Paved or Military Restricted Roads
- Public Land Survey System
- Union Pacific Railroad
- Streams
- Geographic Place

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SOURCE: Base Map information: BLM, Las Cruces Field Office, 2001
Standard Habitat Sites: BLM, Las Cruces Field Office, 2001

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Map 3-6

TABLE 3-5
VEGETATION TYPES CORRESPONDING TO STANDARD HABITAT SITES

Vegetation Type	SHS
Arroyo Desert Shrub	Arroyo
Basin Desert Grassland	Grass Flat
	Mesquite Rolling Upland
	Mixed Shrub Rolling Upland
Creosotebush	Creosote Hills
	Creosote Rolling Upland
	Mixed Shrub Rolling Upland
Foothills Grassland	Grass Hills
	Grass Mountains
Foothills Desert Shrubland	Grass Hills
	Mixed Shrub Hills
Mesa Grassland	Grass Flat
	Grass Rolling Upland
Mesquite Coppice	Mesquite Rolling Upland
	Mesquite Sand Dunes
Mixed Desert Shrub	Creosote Rolling Upland
	Mixed Shrub Rolling Upland
Montane Scrub	Mixed Shrub Mountains
Piñon-Juniper Woodland	Grass Flat
	Mixed Shrub Mountains
	Piñon-Juniper Grass Mountains

Dominant grass species found in the Grassland SHS categories include tobosa or alkali sacaton, vine mesquite, gramas, muhlys, burrograss, dropseeds, lovegrasses, wolftail, and bluestems. Soaptree yucca, broom snakeweed, mesquite, althorn, Apache plume, skunkbush sumac, ocotillo, mountain mahogany, oaks, beargrass (*Nolina spp.*) and fringed winter fat characterize shrubbery vegetation. Prickly pear is also found in the McGregor Range grasslands. Wildlife species diversity for this SHS category is moderate for birds, mammals, and reptiles (BLM 1988b). In addition, the Grass Mountain SHS is considered second only to the Arroyo SHS as preferred habitat for deer. Pronghorn will utilize this habitat where it is adjacent to the Grass Rolling Upland SHS.

3.11.1.2 Desert Scrub

The SHSs that have been combined under this broader category include the Creosote Hills, Creosote Rolling Upland, Mesquite Rolling Upland, Mesquite Sand Dunes, Mixed Shrub Hills, and Mixed Shrub Rolling Upland. Approximately 339,921 acres within McGregor Range support these habitat sites (note: acreage derived from GIS data).

Dominant plant species found in the Desert Scrub SHS categories include grasses, shrubs, cacti, and a variety of annual and perennial forbs. Grass species include grama grasses, bush muhly, burrograss, tobosa, and vine mesquite. Shrub species characteristic of this SHS are mariola, Wright's lippia (*Aloysia wrightii*), whitethorn acacia, fourwing saltbush, creosotebush, desert holly, broom snakeweed, tarbush, littleleaf sumac, mesquite, soaptree yucca, skunkbush sumac, Mormon tea, sotol, and feather dalea. This diversity of plant life allows for a moderate to high diversity of birds, mammals and reptiles in these SHSs. However, species diversity is low for mammals in the Mesquite Rolling Uplands and low for birds, mammals, and reptiles in the Mesquite Sand Dunes (BLM 1988b).

3.11.1.3 Montane Scrub

The Mixed Shrub Mountain SHS falls into this category on McGregor Range. Montane Scrub is found adjacent to the woodland/forest habitat type at the higher elevations of McGregor Range. Approximately 10,039 acres within McGregor Range support this habitat site (note: acreage derived from GIS data).

This SHS contains the highest diversity index for plant species of all types and has moderate structural diversity (BLM 1988b). Shrub species dominate the vegetation community of this SHS with an understory of grama grasses, bush muhly, slim tridens, and threeawns. These are important browse species. Characteristic shrubs are broom snakeweed, whitethorn acacia, catclaw mimosa, Apache plume, skunkbush sumac, Wright's buckwheat brush, and mountain mahogany. This SHS is located between surrounding uplands and below the piñon-juniper vegetation community. Species diversity is high for mammals and birds, and moderate for reptiles (BLM 1988b). This SHS is of major importance to mule deer.

3.11.1.4 Woodland/Forest

The only SHS that falls into this category is the Piñon-Juniper Grass Mountains. The woodland/forest habitat site is found at the higher elevations of McGregor Range and is primarily associated with the Sacramento Mountain foothills. Approximately 6,474 acres within McGregor Range support this habitat site (note: acreage derived from GIS data).

The Piñon-Juniper Grass Mountains SHS generally occurs on mountain ranges at elevations of about 6,000 feet. The dominant species of this SHS are piñon pine and one-seed juniper with sparse-to-medium dense grass cover of gramas, muhlys and threeawns. The shrub understory consists of mountain mahogany, oaks, skunkbush sumac, and Opuntia spp. (prickly pear and cholla). Several annual and perennial forb species are represented. This SHS has high plant species diversity and provides the highest structural diversity of all the habitat types. Species diversity is high for birds and mammals, and low for reptiles. This has the highest diversity of vertebrate species of all the SHSs because of the high structural and plant species diversity (BLM 1988b).

3.11.1.5 Arroyo

The Arroyo SHS constitutes this habitat site. It accounts for 27,896 acres within McGregor Range (note: acreage derived from GIS data). This SHS is defined as a drainage with only a brief intermittent water flow supporting vegetation dissimilar to that of surrounding uplands. Grass and forb species are often sparse. Typical shrub and tree species include willow, hackberry, Apache plume, western soapberry, littleleaf sumac, mesquite, ash, and brickel bush. Plant diversity is second only to the Mixed Shrub Mountains SHS. Species diversity is low for reptiles and high for both mammals and birds (BLM 1988b).

3.11.2 Big Game

The most common big game species that occur on McGregor Range are desert mule deer (*Odocoileus hemionus*) and pronghorn antelope (*Antilocapra Americana*).Desert mule deer may be found throughout much of McGregor Range but are most common in the hills, mountains, and drainages. Preferred habitats are Piñon-Juniper Grass Mountains, Grass Mountains, and Arroyo habitats north of New Mexico Highway 506 (BLM 1988b). The number of mule deer observed during surveys in the foothills of the Sacramento Mountains within McGregor Range ranged from 587 in 1984 to 206 in 1995 after a major decline in the population in 1990 (NMDGF 1997).

Pronghorn antelope are limited to grassland habitats on Otero Mesa, the lower foothills north of Highway 506, and a small area of rolling grasslands below Otero Mesa to the west. The herd is part of a larger herd, referred to as the Mesa Antelope Herd, which ranges to the east on grasslands adjoining McGregor Range. Pronghorn habitat requirements include grasslands in good ecological condition, with little topographic relief, good visibility (little brush invasion), and abundant supply of forbs. According to research conducted in the Roswell, New Mexico area by New Mexico State University, availability of forbs during the fall is important to fawning success and overall herd viability during the succeeding year (BLM 1988b). Fort Bliss estimated that 500 to 700 pronghorn inhabit Otero Mesa (U.S. Army 1999a).

Other big game species that occur on McGregor Range include elk (*Cervus elaphus*), bear (*Ursus americanus*), mountain lion (*Felis concolor*), and javelina (*Dicotyles tajacu*). Elk and bear occasionally are seen in the foothills of the Sacramento Mountains (BLM 1999). Most elk appear to be year-round residents; no defined winter or calving areas are present (Massey 1999). Mountain lions are common inhabitants of the brushy hill, mountain, and arroyo habitats of McGregor Range. Occurrence is generally tied to distribution and abundance of its primary prey, the desert mule deer. Mountain lions can be occasional-to-frequent predators of livestock (BLM 1988b). Javelina have been observed below Otero Mesa and in Culp and El Paso Canyons (Christensen 2002b).

Two exotic species, oryx (*Oryx gazella*) and barbary sheep (*Ammotragus lervia*), are also present on McGregor Range. These species are described in Section 3.11.4.4.

3.11.3 Small Game

Major species of upland game birds include Gambel's quail (*Callipepla gambelii*), scaled quail (*Callipepla squamata*), Montezuma quail (*Cyrtonyx montezumae*) and mourning dove (*Zenaidura macroura*). Gambel's quail and scaled quail inhabit brushy habitats such as arroyo and mixed shrub uplands and hills (BLM 1988b); although Gambel's quail tend to prefer more mesic habitats compared to scaled quail, which use more zeric areas (BLM 1999). Gambel's quail depend on mixed shrub areas for feeding, resting, and nesting cover. Good grass cover and forb diversity are also important to this species (BLM 1988b). Scaled quail are opportunistic feeders and rely on insects as a food source, particularly during nesting and juvenile periods. Population numbers of both quail species fluctuate, depending in part on precipitation. Montezuma quail is associated with mountain areas containing pine or oak woodland and are found in the piñon-juniper grass mountains on McGregor Range. Mourning doves are common to abundant throughout McGregor Range in all seasons but winter. During nesting, doves are dependent on free water supplies and often are associated closely with manmade water improvements. Wild turkey (*Meleagris gallopavo*) is another game bird that may be found on McGregor Range, although infrequently, in the foothills of the Sacramento Mountains. Black-tailed jackrabbits (*Lepus californicus*) and desert cottontails (*Sylvilagus audobonii*) also are common on McGregor Range, utilizing most habitat sites (BLM 1999).

3.11.4 Nongame

Many nongame species including amphibians, reptiles, birds, and small mammals, occur throughout McGregor Range.

3.11.4.1 Amphibians and Reptiles

According to studies conducted by Fort Bliss, a total of 8 species of amphibians and 39 species of reptiles are known to occur on McGregor Range and 25 additional species or subspecies of amphibians and reptiles have the potential to occur (U.S. Army 1996a, 1997a,b). The barred tiger salamander (*Ambystoma tigrinum mavortium*) is found in stock tanks on Otero Mesa and in the Tularosa Basin. The remaining seven species of amphibians are toads and spadefoots.

Reptiles identified included 20 lizard species, 18 snake species, and the box turtle (*Terrapene ornata*). Grassland habitats support the largest number of reptiles on McGregor Range, followed by desert scrub, and the Sacramento Mountain Foothills (U.S. Army 1997b).

3.11.4.2 Birds

A total of 223 species of birds have been recorded from McGregor Range (U.S. Army 1996b). Common breeding bird species found at McGregor Range include black-throated sparrow (*Amphispiza bilineata*), mourning dove, ash-throated flycatcher (*Myiarchus cinerascens*), western kingbird (*Tyrannus verticalis*), Scott's oriole (*Icterus parisorum*), northern mockingbird (*Mimus polyglottos*), verdin (*Auriparus flaviceps*), brown-headed cowbird (*Molothurs ater*), horned lark (*Eremophila alpesiris*), eastern meadowlark (*Sturnella magna*), common nighthawk (*Chordeiles minor*), cactus wren (Campylorhynchus brunneicapillus*)*, canyon towhee (*Pipilo fuscus*), house finch (*Carpodacus mexicanus*), common bushtit (*Psaltriparus minimus*), spotted towhee (*Pipilo maculates*), and black-chinned sparrow (*Spizella artogularis*) (U.S. Army 1996b, 1997c,d).

The most common raptor species observed during breeding bird surveys at McGregor Range include the red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), and turkey vulture (*Catharthes aura*). Other species observed during spring and summer include golden eagle (*Aquila chysaetos*), prairie falcon (*Falco mexicanus*), merlin (*Falco columbarius*), burrowing owl (*Athene cunicularia*), sharp-shinned hawk (*Accipiter siriatus*), American kestrel (Falco sparverius), and great-horned owl (*Bubo virginianus*). Common wintering species of raptors are the golden eagle, red-tailed hawk, American kestrel, western screech owl (*Otus kennicotti*), and great-horned owl (U.S. Army 1995; 1996b,c,d,e; 1997a,c; 1998e; 1999a).

Two areas on McGregor Range were observed to support particularly diverse bird populations. In the Tularosa Basin, 17 percent more bird species and 29 percent more individuals were recorded during surveys in arroyos than in uplands. On Otero Mesa, approximately 45 percent more species and 34 percent more birds were observed during surveys in the grassland swales than in adjacent uplands (U.S. Air Force [USAF] 1997a,b).

3.11.4.3 Mammals

A total of 58 species of mammals are known to occur, and an additional 19 species have the potential to occur on McGregor Range (U.S. Army 1999a). Seventeen of these species are bats. Two maternity colonies of fringed myotis (*Myotis thysanodes*) were observed in abandoned cabins in the Sacramento Mountains foothills (Smartt 1980). Western pipistrellus (*Pipistrellus hesperus*), Myotis sp. and free-tailed bats (*Tadarida sp.*) have been observed emerging from the Otero Mesa escarpment and at some stock tanks (USAF 1997c,d).

Common species of rodents on McGregor Range include silky pocket mouse (*Perognathus flavus*), Merriam's kangaroo rat (*Dipodomys merriami*), deer mouse (*Peromyscus maniculatus*), hispid cotton rat (*Sigmodon hispidus*), white-footed mouse (*Peromyscus leucopas*), cactus mouse (*Peromyscus eremicus*), western harvest mouse (*Reithrodoniomys megalotis*), and Ord's kangaroo rat (*Dipodomys ordii*). The largest number of rodent species has been observed in the arroyo scrub, whereas the lowest species diversity for rodents has been observed in mesquite dunes (U.S. Army 1997e). According to one study, relative abundance of rodents was six times greater in arroyos than in adjacent upland habitats (U.S. Army 1996f).

The desert cottontail and black-tailed jackrabbit are common on McGregor Range. Predators on McGregor Range include the mountain lion, coyote (*Canis latrans*), kit fox (*Vulpes macrotis*), badger (*Taxidea taxus*), and bobcat (*Lynx rufus*) (U.S. Army 1999a).

3.11.4.4 Exotic Species

Two exotic animal species are found on McGregor Range, oryx and barbary sheep. Oryx, a large exotic African antelope species, inhabit the Tularosa Basin of McGregor Range and, over the last several years, a resident population has been established on the mesa portion of the range. The NMDGF released oryx on the White Sands Missile Range in the 1960s as a game species. The oryx population has since grown and expanded its range. It is a highly adapted desert species that subsists on desert shrubs and forbs. These animals can be highly aggressive and may present hazards to people (BLM 1988a). Barbary sheep is an introduced species in New Mexico. It is present in relatively small numbers in the foothills of the Sacramento Mountains and on the escarpment of the mesa on McGregor Range.

3.11.5 Habitat Conservation

3.11.5.1 Habitat Diversity Index

Detailed studies of plant and wildlife species richness and abundance on McGregor Range have provided sufficient data to calculate diversity indices. Diversity indices incorporate both species (habitat) richness and evenness into a single quantitative value. A habitat diversity model was created for McGregor Range that used SHSs, human disturbance, and species diversity as inputs. Each SHS has species diversity indices for mammals, birds, reptiles, and plants (BLM 1995). In the model, diversity indices were added together for mammals, birds, reptiles, and plants within each SHS, which resulted in a total diversity index for the SHS.

Areas of McGregor Range with very high diversity indices occur along the escarpment of Otero Mesa, particularly where mixed shrub hills and arroyos interface with other SHSs, as well as at the higher elevations of the study area (mountain sites). Moderate habitat diversity areas are associated with areas dominated by mesquite sand dunes and grass flats. Low diversity areas are associated with the limited areas dominated by disturbed habitat actively being used by Fort Bliss and the BLM.

3.11.5.2 Habitat Fragmentation/Wildlife Corridors

Human disturbance was identified on McGregor Range and includes existing roads, range improvements (e.g., tanks, troughs, wells), transmission lines, and disturbed sites. The existing roads and new road construction cause edge effects which may include mortality from road construction, vehicle traffic wildlife mortality, modification of movement corridors, and an overall change in species composition and population size of the resident wildlife on McGregor Range. The potential for vehicle traffic wildlife mortality is limited to improved roads and highways with relatively high traffic volumes at night. New Mexico Highway 506 is the only highway that traverses McGregor Range; others are dirt roads that are used primarily by the military. Because of the extensive continuity of native vegetation throughout McGregor Range and the small area that may be associated with potential impacts, habitat fragmentation is of limited concern within the McGregor Range. The more prominent areas of disturbance are limited to areas on McGregor Range where active military training occurs (i.e., Centennial Range and McGregor Launch Complex). These areas do not present an effective fragmentation effect due to their relatively small size and clustered distribution.

Due to the extensive continuity of native habitats, wildlife generally are unconstrained in their movements between suitable habitat patches within the study area and beyond. Major drainages, arroyos, and ridgelines are expected to be important routes for wildlife to traverse the varied landscape of McGregor Range. Large mammals such as elk and mule deer tend to hide from predators or prey and often use extensive areas of shrub/tree cover while in transit. Predators use the cover for hunting. Extensive areas of open habitat types (e.g., disturbed areas or short grasslands) tend to be avoided by wildlife in transit between suitable habitat patches due to the low amount of available cover. The potential for vehicle traffic wildlife mortality is limited to improved roads and highways with relatively high traffic volumes at night (e.g., New Mexico Highway 506).

3.12 SPECIAL STATUS SPECIES

Federally listed and State-listed threatened and endangered, and other special status species (BLM Sensitive) that are known or have the potential to occur on McGregor Range are addressed in this section. Special status species contained in this section were identified through means of a letter from the USFWS and from special status species information provided by BLM, Las Cruces Field Office. Common name, scientific name, status, habitat characterization and general distribution information, and known or potential occurrence on McGregor Range, are described in Section 3.12.1 for plants and Section 3.12.2 for wildlife.

A variety of habitat types provide important environments, either for growth, foraging, cover, and reproduction and rearing, for a number of special status species. The general habitat types present on McGregor Range are described in Section 3.11. Of these types, grasslands, mesquite dunes, and piñon-juniper woodland are particularly important to special status species. Several special status species are associated with rocky cliffs among these habitats.

3.12.1 Special Status Plant Species

Special status plant species that occur or could occur on McGregor Range are listed in Table 3-6 and described below. Only one species, *Toumeya papyracantha* or the Grama grass cactus, has been identified as occurring on McGregor Range. The Grama grass cactus is designated as BLM sensitive and typically occurs in valleys and open slopes between 4,000 and 7,000 feet elevation. There is a high probability of its occurrence on the Otero Mesa in the east part of McGregor Range. Prior to 1992, there were only two records for this species and both were in the grasslands on Otero Mesa (U.S. Army 2000). Known populations on McGregor Range occur in the central portion of McGregor Range south of New Mexico Highway 506. Information on other species listed in Table 3-6 is provided in Appendix D.

Special status wildlife species that are known to occur or potentially occur on McGregor Range are listed in Table 3-7. The northern aplomado falcon, which is specifically addressed in the alternatives, is discussed below and additional information on all special status wildlife species in Table 3-7 is provided in Appendix D.

3.12.2 Special Status Wildlife Species

The northern aplomado falcon (*Falco femoralis septentrionalis*) is listed as endangered Federally and by the State of New Mexico. Its habitat is desert grasslands with scattered mesquite and yucca, riparian woodlands in open grassland, and among yucca-covered sand ridges in coastal prairies. It uses previously constructed nests located in the saddle of branched yuccas, in mesquites, or on the tops of crucifixion bushes.

TABLE 3-6
SPECIAL STATUS PLANT SPECIES THAT OCCUR AND COULD OCCUR ON McGREGOR RANGE

Species		Status		
Common Name	**Latin Name**	**Federal**	**State**	**BLM**
Kuenzler's hedgehog cactus	*Echinocereus fendleri var. kuenzleri*	E	E	
Alamo beardtongue	*Penstemon alamosensis*			S
Grey sibara	*Sibara grisea*		R	
Sand prickly pear cactus	*Opuntia arenaria*		E	S
Scheer's pincushion cactus	*Coryphantha scheerii var. uncinata*		E	S
Grama grass cactus	*Toumeya papyracantha*			S
Plank's catchfly	*Silene planckii*		R	
Night blooming cereus	*Peniocereus greggii var. greggi*		E	S

SOURCE: Bureau of Land Management 1988a; U.S. Army 1999a; U.S. Fish and Wildlife Service 2001
NOTE: E = Endangered, S = Sensitive, R = Rare

TABLE 3-7
SPECIAL STATUS WILDLIFE SPECIES THAT OCCUR AND COULD OCCUR ON McGREGOR RANGE

Species		Status		
Common Name	**Latin Name**	**Federal**	**State**	**BLM**
Known				
Texas horned lizard	*Phrynosoma cornutum*	C		S
Bald eagle	*Haliaeetus leucocephalus*	T	T	
Ferruginous hawk	*Buteo regalis*			S
Northern aplomado falcon	*Falco femoralis septentrionalis*	E	E	
American peregrine falcon	*Falco peregrinus anatum*		T	
Mountain plover	*Charadrius montanus*			S
Common ground dove	*Columbina passerina*		E	
Western burrowing owl	*Athene cunicularia hypugea*			S
Mexican spotted owl	*Strix occidentalis lucida*	T		
Loggerhead shrike	*Lanius ludovicianus*			S
Bell's vireo	*Vireo bellii*		T	
Gray vireo	*Vireo vicinior*		T	
Baird's sparrow	*Ammodramus bairdii*		T	S
Varied bunting	*Passerina versicolor*		T	
Fringed myotis	*Myotis thysanodes*			S
Gray-footed chipmunk	*Tamias canipes*			S
Arizona black-tailed prairie dog	*Cynomyz ludovicianus arizonensis*			S
Possible				
Mottled rock rattlesnake	*Crotalus lepidus lepidus*		T	
Western small-footed myotis	*Myotis ciliolabrum melanorhinus*			S
Cave myotis	*Myotis velifer*			S
Long-legged myotis	*Myotis volans*			S
Spotted bat	*Euderma maculatum*		T	S
Pale Townsend's big-eared bat	*Corynorhinus townsendii*			S
Big free-tailed bat	*Nyctinomops macroti*			S

SOURCE: Bureau of Land Management 1988a; U.S. Army 1999a; U.S. Fish and Wildlife Service 2001
NOTE: S = Sensitive, T = Threatened, C = Candidate, E = Endangered

This species supposedly was extirpated in the United States since the late 1950s. However, a pair of aplomado falcons was observed nesting in Luna County, New Mexico in 2001 and 2002 (Howard 2002; Meyer 2002). There were four verified sightings of aplomado falcon and one unconfirmed sighting in 1997 along the hills immediately west of Otero Mesa on McGregor Range (Placker 2002).

The northern aplomado falcon also has been sighted in northern Mexico, on or adjacent to the White Sands Missile Range in 1991 and 1992, and on U.S. Highway 380 between Carrizo and San Antonio, New Mexico in 1992 (BLM 1999; U.S. Army 1999a, 2000). No critical habitat has been identified within the United States.

A predictive habitat study for aplomado falcon was prepared by the New Mexico Cooperative Fish and Wildlife Research Unit (Young et al. 2002) with funding from BLM, Fort Bliss, White Sands Missile Range, and T&E Inc. New Mexico State University and Universidad Autonoma de Chihuahua were cooperators. The study classifies habitat suitability based on the number of habitat criteria in the model being met within the landscape (Map 3-7). For general land management purposes, BLM estimates the presence of suitable habitat for aplomado falcon based on SHSs that feature characteristics consistent with habitat requirements for this species. Revised habitat assessment methodology from the aplomado falcon habitat study will be used to field check model data, and to provide habitat suitability data for environmental review, recovery and activity planning.

A comparison of suitable aplomado falcon habitat as predicted by the 2002 habitat study and the SHS approach (refer to Map 3-7) indicates that the 2002 habitat study predicts the presence of suitable habitat over a larger area of McGregor Range. This includes a broader area in the Tularosa Basin and areas north of New Mexico Highway 506, which are not areas identified as potential habitat with the SHS approach. Furthermore, the 2002 habitat study identifies some areas where no criteria are met within areas identified as potential habitat based on SHSs. The habitat assessment map in combination with the predicted model data will be the final determinants of the presence or absence of aplomado falcon habitat within the Field Office.

3.13 LIVESTOCK GRAZING

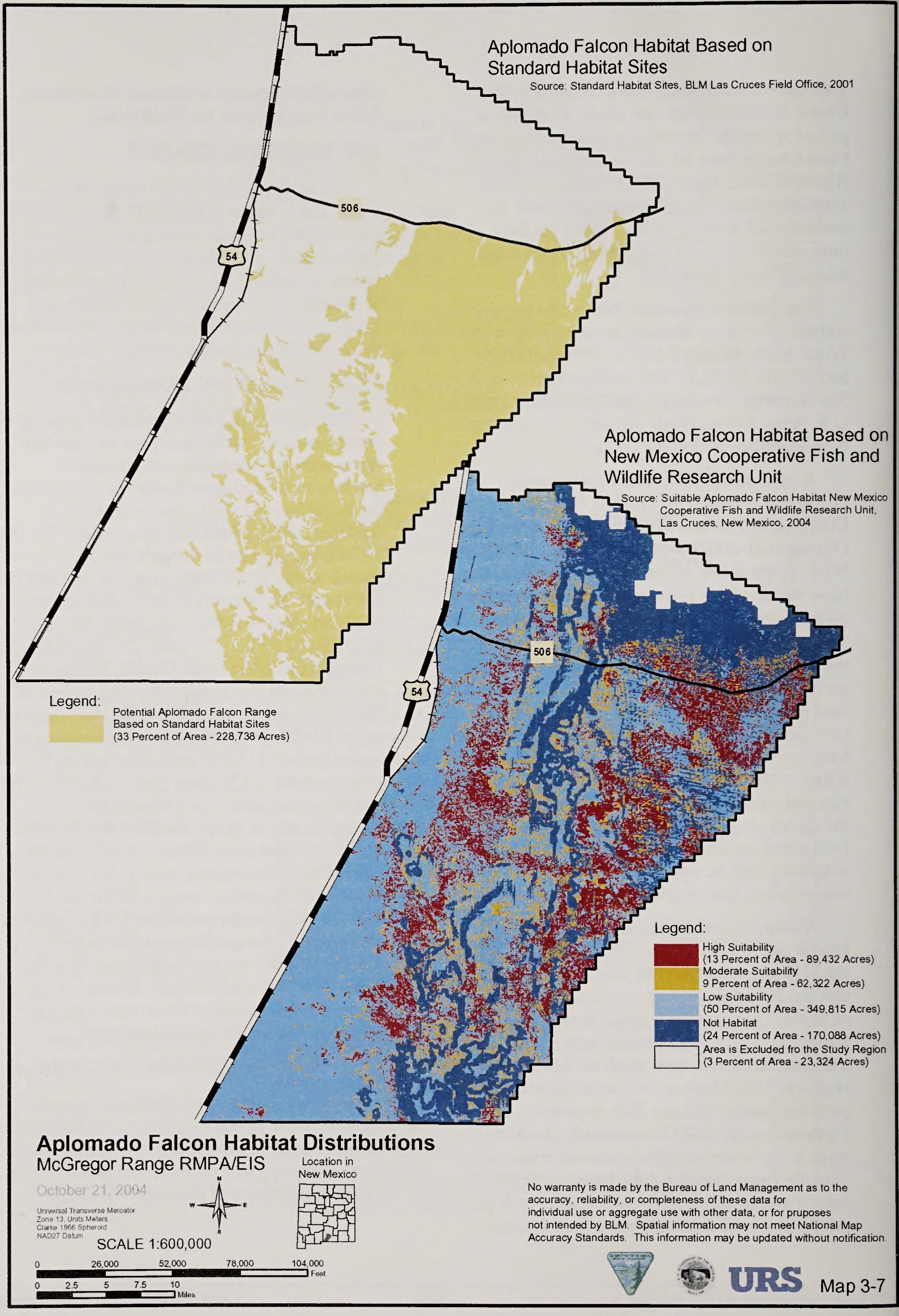
Livestock grazing occurs on McGregor Range and is administered by BLM. The area available for livestock grazing includes approximately 271,000 acres that are divided into 14 grazing units (Map 3-8). Cattle are the only livestock currently permitted on McGregor Range, with the exception that up to three horses are permitted per grazing unit.

3.13.1 Livestock Use of Grazing Units

The number of units available for grazing, the grazing season, and livestock use on each unit varies each year depending on ecological conditions on McGregor Range. Livestock use can be measured by the number of cattle or yearlings, or by animal unit months (AUMs). An AUM is the amount of forage needed by one animal unit (e.g., a 1,000 pound cow and calf) for one month. The number of cattle allowed on McGregor Range between the years 1990 and 2000 ranged from 1,625 cattle (27,225 AUMs) in 1990/1991 to 3,050 cattle (34,974 AUMs) in 1993/1994. As few as six units were grazed in 2000/2001, and as many as 12 units were grazed in 1993/1994. In the 2000/2001 grazing season, approximately 153,159 acres were grazed by approximately 1,175 cattle (16,216 AUMs). The typical grazing season is 9 months (October through June), or 18 months (October through April). In recent years (2002-2003), livestock grazing has been reduced greatly due to poor rainfall and, therefore, forage production. In addition, the drought has affected water supplies on McGregor Range. These problems are associated with very low water flows from the Sacramento River and Carrizo Spring, which supply a large portion of the livestock water needed to support the grazing program.

3.13.2 Rangeland Utilization and Condition

Field studies are conducted and the results documented to monitor conditions on McGregor Range and determine appropriate stocking rates for each grazing unit on an annual basis. Annual monitoring consists of evaluation of forage



Aplomado Falcon Habitat Based on Standard Habitat Sites

Source: Standard Habitat Sites, BLM Las Cruces Field Office, 2001

Legend:

🟨	Potential Aplomado Falcon Range Based on Standard Habitat Sites (33 Percent of Area - 228,738 Acres)

Aplomado Falcon Habitat Based on New Mexico Cooperative Fish and Wildlife Research Unit

Source: Suitable Aplomado Falcon Habitat New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, New Mexico, 2004

Legend:

🟥	High Suitability (13 Percent of Area - 89,432 Acres)
🟧	Moderate Suitability 9 Percent of Area - 62,322 Acres)
🟦	Low Suitability (50 Percent of Area - 349,815 Acres)
🟦	Not Habitat (24 Percent of Area - 170,088 Acres)
☐	Area is Excluded fro the Study Region (3 Percent of Area - 23,324 Acres)

Aplomado Falcon Habitat Distributions

McGregor Range RMPA/EIS

October 21, 2004

Universal Transverse Mercator
Zone 13, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

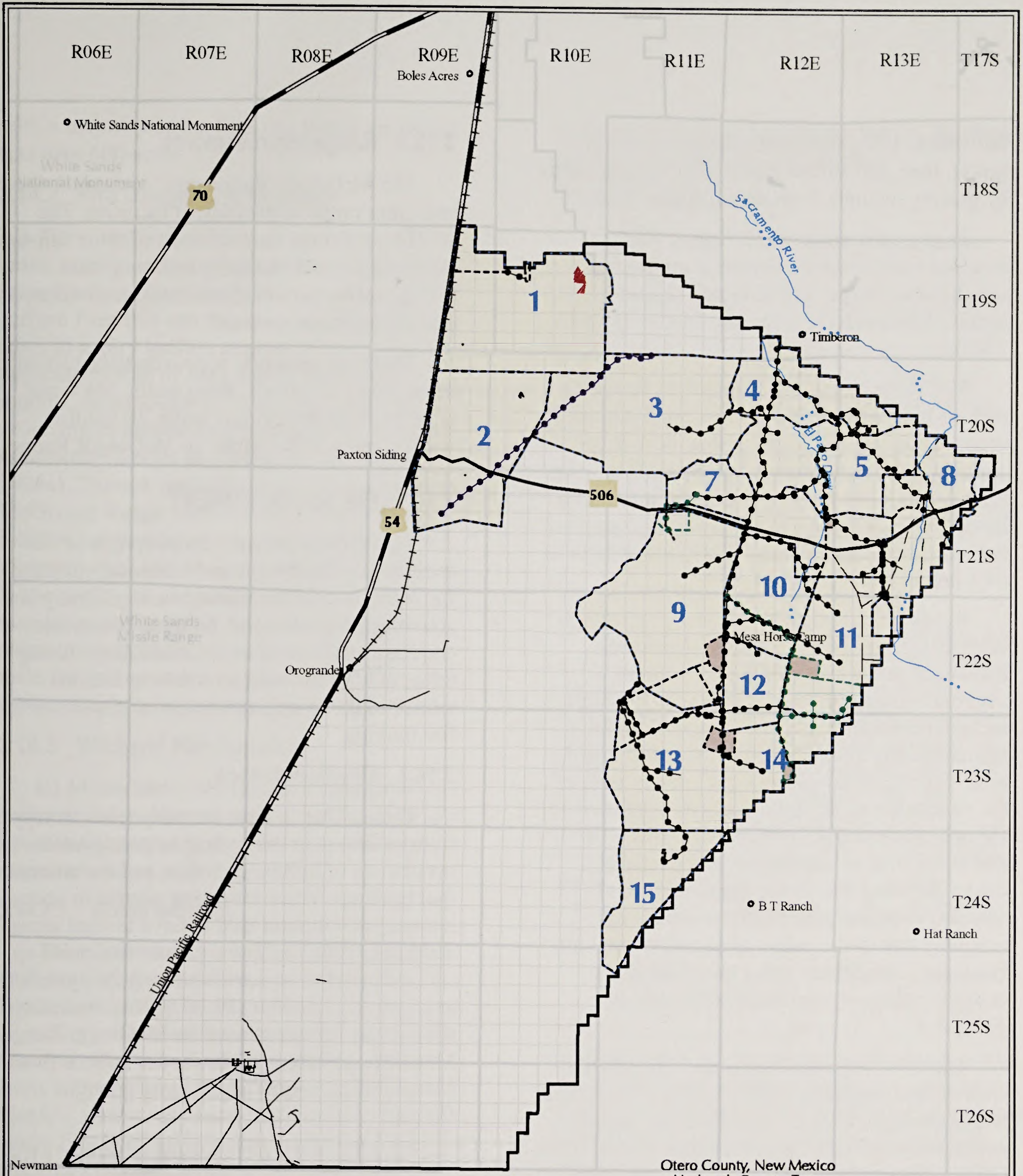
SCALE 1:600,000

Location in New Mexico

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

URS

Map 3-7


R06E
R07E
R08E
R09E
R10E
R11E
R12E
R13E
T17S
T18S
T19S
T20S
T21S
T22S
T23S
T24S
T25S
T26S
Boles Acres
White Sands National Monument
70
Sacramento River
Timberon
El Paso Draw
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Paxton Siding
506
54
Mesa Horse Camp
Orogrande
B T Ranch
Hat Ranch
Union Pacific Railroad
Newman
Otero County, New Mexico
Hudspeth County, Texas

Range Units and Rangeland Improvements

McGregor Range RMPA/EIS

October 21, 2004

Location in New Mexico

Universal Tranverse Mercator
Zone 13, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

SCALE 1 : 500,000

Legend:

Rangeland Improvments:
- ▭ Range Unit Boundaries
- ▬ Trap Fence
- ●-● Pipeline
- ●-● Planned Pipeline
- ●-● Orogrande Pipeline
- --- Fence Line
- --- Planned Fence Line
- — Check Dam

General Reference:
- ═ Primary Roads
- ━ Secondary Roads
- -- County Roads
- — Paved or Military Restricted Roads
- Public Land Survey System
- ┼ Union Pacific Railroad
- --● Streams
- ○ Geographic Place

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. Spatial information may not meet National Map Accuracy Standards. This information may not be updated without notification.

SOURCE: Base Map Information: BLM, Las Cruces Field Office, 2001
Range Improvment Information: BLM, Las Cruces Field Office, 2001

URS

Map 3-8

utilization. Utilization is the degree of forage (grass, forb, and shrub) removed from rangelands by grazing animals, both domestic and wild.

Forage utilization on McGregor Range is assessed using the Key Forage Plant Method, which estimates percent of forage weight removed for predetermined key species (BLM 2001b).

Key forage species on McGregor Range include black grama, blue grama, sand dropseed, dropseed species, side oats grama, bush muhly, stipa spp., alkali sacaton, bristlegrass, four-wing saltbush, mountain mahogany, and slim tridens. Percent utilization was as low as zero percent on two units between 1997 and 1999, and as high as 64.8 percent on one unit in 1996.

Range condition, or ecological condition, is established based on vegetation inventories conducted every 5 years. BLM conducted a vegetative inventory on the Range in 1997 that included estimation of the ecological condition of approximately 264,556 acres of the total grazing area. Ecological condition is the present state of the vegetation on an ecological site in relation to the potential natural community for that particular site. It is an expression of the relative degree to which the kinds, proportions, and amounts of plants making up a community resemble that of the potential natural community. Ecological condition can be identified by condition class or seral stage as shown on Table 3-8.

The 1997 vegetative inventory classified a total of approximately 195,895 acres (72% of the total grazing area) as in "excellent" or "good" ecological condition. Approximately 68,661 acres (25% of the total grazing area) were classified as "fair" or "poor" ecological condition.

TABLE 3-8
ECOLOGICAL CONDITION CLASSES

Condition Class	Seral Stage	Estimated Percentage of Resemblance To Potential Natural Community
Excellent	Climax	76-100
Good	High/Late	51-75
Fair	Medium/Mid	26-50
Poor	Low/Early	0-25

SOURCE: Bureau of Land Management 1997b

3.13.3 Range Improvements

The McGregor Range crew maintains waters and other range improvement facilities. The McGregor Range crew consists of three full-time BLM employees including one rangeland management specialist, one range technician, and one maintenance worker.

There are presently approximately 130 miles of pipeline, 15 corrals, three wells, 106 water troughs, 50 water storage tanks, 10 wildlife waters, and 100 dirt tanks on McGregor Range.

3.14 FIRE MANAGEMENT

This section provides an overview of fire occurrence, fire danger and behavior, wildland fire hazards, and fire management planning and activities on public land. Scoping comments emphasized the need to reduce hazards during times of high fire risk, particularly hazards related to the timing and potential impacts of live fire training.

3.14.1 Fire Occurrence

The number of fires annually tends to vary from year to year depending on precipitation, the occurrence of lightning strikes, and the amount of fuel build up. Years following normal to above normal precipitation tend to have several more and larger fires due to the greater fuel build up, and conversely, in years following drought, fires are fewer and smaller (BLM 1998a). Annually, the highest fire occurrence on McGregor Range is May through July, with lower occurrence from March through April and August through October.

Between 1992 and September 2002, 71 fires were recorded on lands administered by the BLM on McGregor Range. During those years, annual ignitions were recorded in every year except 2002 (to date). The highest fire frequencies occurred in 1993 and 1994, which had 17 and 20 fires, respectively. Of the 71 total fires, 42 started naturally (i.e., lightning) and 29 were human caused (i.e., military starts). The naturally started fires ranged from less than one acre to 8,900 acres (Escondido fire in 1993), though only eight exceeded 1,000 acres. The size of the human-caused fires ranged from less than one acre to 19,000 acres (Hay Meadow fire in 2000), with a majority of the fires (all but seven) being less than 600 acres.

3.14.2 Fire Danger and Behavior

The primary fuel base on McGregor Range is grass, which tends to produce fast-moving, low-intensity fires. Grassland fires are primarily surface fires that can increase to greater than 50 acres in a very limited amount of time. This is particularly true of fires during the summer months, or wind-driven fires year round. Fires occurring in the summer months often burn just as actively at night as during the day (BLM 1998a). Though typically much smaller, fires on McGregor Range have burned up to and over 5,000 acres or more during a single event. The Planning Area also includes mountainous terrain in the north part of McGregor Range, which transitions to the piñon-juniper vegetative community in higher elevations. This area includes grassy understory and various brush species that also can spread fire quickly.

3.14.3 Wildland Fire Hazards

BLM has identified two areas that present potential safety hazards with respect to fires and fire management: (1) the urban interface and (2) impact areas.

3.14.3.1 Urban Interface

The northern portion of McGregor Range includes withdrawn public land managed by the Forest Service and BLM, as well as private lands, including private military-acquired lands and other private lands. Located near these forested lands is the community of Timberon, New Mexico, which has about 350 residents. The heavy fuel loading on public and private lands in this area generates a risk to the community. Recently, Timberon residents have conducted thinning projects on private land to reduce this risk. Cooperative efforts between the U.S. Army and BLM to implement fire breaks and prescribed burning in 2002-2003 are anticipated to further reduce safety hazards in this area. In 2003, an Environmental Assessment for Timberon Hazard Fuels Reduction and Woodland Management was completed by the BLM in cooperation with Fort Bliss and the U.S. Forest Service. More detail is provided on the actions associated with this effort in the discussion of reasonably foreseeable future actions (Section 4.1.2) in Chapter 4.

3.14.3.2 Impact Areas

Impact areas on McGregor Range, below Otero Mesa and in Centennial Range, pose a safety risk for BLM fire management activities because of the military use and training in these areas, which involves weapons firing, surface impact, and surface danger zones. Public and BLM access to these areas is restricted by the U.S. Army.

Fire risks from Centennial Range have been reduced through installation of a fire break along the north, south, and west sides; the east side can be blacklined (burned) as needed.

3.14.4 Fire Management Planning

BLM does not have a Fire Management Plan that is specific for McGregor Range, but the Las Cruces Field Office Fire Management Plan (Phase I) includes McGregor Range as part of a much broader area. The plan proposes activities for prescribed fire, fuels management, fire prevention, and fire suppression. Fires are prescribed to reintroduce fire into the ecosystems, reduce hazardous fuels, improve wildlife habitat, maintain chemically treated brush control projects, and improve range conditions. (BLM 1998b).

The plan recognizes the fire management categories that have been established in BLM's Land Use Planning Handbook (H-1601-1) (BLM 2000b). Public land managed by the BLM can be classified as one of four categories (Categories A through D, based on where wildfire is desired and mitigation or suppression would be required).

All fires in grazing units 1 through 15 and the Culp Canyon and Sacramento Escarpment Wilderness Study Areas (WSAs) are suppressed (Whiteaker 2002). Fire management emphasizes prevention of unwanted fire ignitions and resource threats, through the use of fire and nonfire fuels treatments. BLM has not conducted fire management activities involving firebreaks or other vegetative treatments since the 1990 RMP was approved. Currently, the Statewide Fire and Fuels Management Plan shows the majority of McGregor Range to be in a Category C, with the Impact Area in Category D and a small area around Timberon to be in Category A. BLM does not take action on fires in other areas south of New Mexico Highway 506 and west of Otero Mesa, or in Centennial Range (Whiteaker 2002).

The Fort Bliss/McGregor 1st Support Battalion Fire Management Plan establishes that the Chief of Range Development and Enforcement (or his designee), upon notification of a wildfire will proceed directly to the fire site to evaluate the situation and make a recommendation to the command as to the proper control procedures (U.S. Army 2002). The Forest Management Plan for Fort Bliss includes provisions for fire management in the forested areas of McGregor Range. The plan provides a framework for forest management, which allows for beneficial use of forest resources while providing for the preservation and protection of ecosystems (U.S. Army 1999b). The plan establishes 31 independent forest stands and outlines management actions for many of the stands. In particular, the plan recommends thinning the two stands nearest to the community of Timberon, and subsequently conducting prescribed burns in these areas.

As discussed in Section 2.2.10, the BLM New Mexico State Office has prepared a Statewide Fire and Fuels Management Plan that amends the RMPs throughout the State.

3.14.4.1 Prescribed Burns

Prescribed burns have not occurred on McGregor Range since the development of the 1990 RMPA. Specific prescribed burning areas were outlined in the 1990 RMPA for McGregor Range, including approximately 220,800 acres of primarily grassland areas. BLM identified these areas for prescribed burning based on the potential to improve rangeland condition and wildlife habitat in these areas. In addition, prescribed fires on McGregor Range would fall under an MOU for smoke management among the BLM and the NMED, Forest Service, National Park Service, USFWS, and New Mexico Department of Energy, Minerals, and Natural Resources (USDA, Forest Service 1997). Under the MOU, an annual permit is required from NMED for air pollutant emissions resulting from management-ignited prescribed fires and prescribed natural fires (BLM 1998a; USDA, Forest Service 1997). All fires would be managed to reduce the possibility of negative impacts from emissions on sensitive areas (e.g., nearby population centers).

3.14.4.2 Coordination with Fort Bliss

An MOU between BLM and Fort Bliss (BLM 1990b) outlines responsibilities associated with fire protection. Under the terms of the MOU, BLM is responsible for monitoring and suppressing all nonmilitary fires on withdrawn land and U.S. Army-owned land. However, BLM responds to all fires, regardless of cause, and takes the lead role in fire suppression efforts in grazing units 1 through 15 and the Culp Canyon and Sacramento Escarpment WSAs, as BLM personnel have more training and experience handling fire situations. BLM does not respond to fires in areas of restricted access. The BLM notifies Fort Bliss of its suppression activities within 24 hours of initiation and completes post-fire reporting. Fort Bliss has responsibility for suppressing and monitoring fires caused by military activities on withdrawn public land and U.S. Army-owned land. Fort Bliss also is responsible for monitoring or suppressing all fires in the impact and military-use area (all areas outside grazing units 1 through 15 and the Culp Canyon and Sacramento Escarpment WSAs). In addition, the MOU specifies that the U.S. Army (Fort Bliss) will construct and maintain firebreaks along the parts of the McGregor Range boundary that enclose lands where grazing is authorized and in any other area that the U.S. Army has determined necessary.

In addition to the MOU with BLM, a memorandum developed by the 1st Combined Arms Support Battalion (USA CAS) establishes procedures for fighting fires on Fort Bliss training and maneuver areas, including McGregor Range (U.S. Army 2002). The response protocol specifies that outside agency support may be requested when a wildfire would be beyond the capabilities of the USA CAS, generally defined as incidences of larger fires; faster wind conditions; and threats to private property, fenced-in livestock, and forested land. Most fires outside the impact or military-use areas become too large for management by the U.S. Army, requiring that BLM manage incident command, including the post-fire reporting. The U.S. Army reimburses BLM for fire fighting efforts that result from military training activities (Whiteaker 2002).

3.15 HAZARDOUS MATERIALS

This section provides a description of the hazardous substances and wastes and related environmental management programs at McGregor Range. EPA uses the term "hazardous substance" for the chemicals that, if released into the environment above a certain amount, must be reported and, depending on the threat to the environment, Federal involvement in handling the incident can be authorized. Hazardous waste, as defined by the Resource Conservation and Recovery Act (RCRA), is a waste from production or operation activities that poses a substantial present or potential hazard to human health and the environment if improperly treated, stored, or disposed.

BLM stores and uses hazardous substances on McGregor Range, including a variety of flammable and combustible liquids. Types of hazardous chemicals used by BLM include paint, fuel, lubricants, oil, adhesives, antifreeze, propane, household cleaners, and fusee (for starting back fires). All of these materials are stored at the facilities located at Prather Camp, and are used in *de minimis* quantities for construction and maintenance activities on McGregor Range. That is, the chemicals are stored in quantities that do not generally represent a risk of harm to public health or the environment nor would typically represent a condition that would be subject to regulatory enforcement. Fort Bliss also stores and uses hazardous chemicals on McGregor Range, including a variety of flammable and combustible liquids. Types of hazardous chemicals used by Fort Bliss during range operations include acids, corrosives, caustics, glycols, compressed gases, aerosols, batteries, hydraulic fluids, solvents, paints, cleaning reagents, pesticides, herbicides, lubricants, fire retardants, photographic chemicals, alcohols, insecticides, sealants, and ordnance. Fort Bliss complies with the Emergency Planning and Community Right-to-Know Act (EPCRA) Section 212 by preparing a yearly chemical storage report, which is filed with EPA.

Hazardous chemical use by the BLM and U.S. Army on McGregor Range results in the generation of a small amount of hazardous waste. Commonly generated hazardous wastes may include used fuel and petroleum oils and lubricants, waste paint, solvents, used batteries, fuel filters, and ordnance wastes. In general, these wastes are generated from vehicle and ground support equipment maintenance, infrastructure maintenance, and training exercises. The transportation, storage, and disposal of these hazardous wastes are regulated by the U.S. Department of Transportation, Occupational Safety and Health Administration; EPA; and NMED.

At McGregor Range, ordnance is expended in a variety of small arms, grenades, mortars, howitzers, artillery, rockets, and missiles during training exercises and testing activities. Currently, expended material classified as ordnance or explosive hazards is either detonated in-place with explosives or if safe to do so, transported to the Open Detonation Treatment Unit for disposal. Fort Bliss has a RCRA Part B Permit (NM4213720101-01) through NMED to treat hazardous waste munitions by open detonation at the Open Detonation Treatment Unit located approximately 3 miles east of McGregor Range Camp.

The U.S. Department of Defense implemented the Installation Restoration Program (IRP) to identify the locations and contents of past toxic and hazardous material disposal and spill sites and to eliminate the hazards to public health in an environmentally responsible manner. The objectives of the IRP are to identify and fully evaluate any areas suspected of being contaminated with hazardous materials remaining from past military operations. The IRP is the basis for response actions on military installations under provisions of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, and the Superfund Amendments and Reauthorization Act of 1986, as clarified in 1991 by Executive Order 12580, Superfund Implementation.

There are eight IRP sites on McGregor Range, which are listed in Table 3-9. Of the eight sites listed in Table 3-9, five are in either a no further action status or in the process of being closed, and the other three sites are active sites, still in use. The 90-day storage site is an important tool in the management of hazardous wastes generated during large training exercises. The oxidation ponds are part of the sewage systems at two Range Camps (Locke 2003).

3.16 CULTURAL RESOURCES

The cultural environment includes those aspects of the physical environment that relate to human culture and society, along with the social institutions that form and maintain communities and link them to their surroundings. BLM defines a *cultural resource* or *cultural property* as:

> “a definite location of human activity, occupation, or use identifiable through field inventory (survey), historical documentation, or oral evidence. The term includes archaeological, historic, or architectural sites, structures, or places with important public and scientific uses, and may include definite locations (sites or places) of traditional cultural or religious importance to specified social and/or cultural groups”. (BLM Manual 8100, *Cultural Resource Management*).

3.16.1 Cultural History

The current understanding of the regional cultural history is based on more than seven decades of research, which has demonstrated that human societies have occupied McGregor Range and surrounding region of the Northern Chihuahua Desert for approximately 14,000 years and perhaps substantially longer. The earliest well-documented occupants, whom archaeologists call Paleoindians, occupied the region from about 12,000 to 7,000 or 6,000 B.C. During this period, the regional climate was transitioning from the cooler and wetter regime of the last Ice Age to weather patterns more like those of today. The camps, killing and butchering sites, and stone tool quarrying and knapping sites of the Paleoindian era are rare. Archaeologists call the long period from about 7,000 or 6,000 B.C. to about A.D. 200 the Archaic era. Archaic sites are more common than Paleoindian sites. The Archaic period represents a continuation of the Paleoindian subsistence strategy of hunting

TABLE 3-9
STATUS AND LOCATION OF IRP AND WASTE STORAGE SITES ON McGREGOR RANGE

Site	Location	Status
Closed rubble pit/sanitary landfill	McGregor Range Camp	RCRA investigation conducted in 2002; no leachate developing, no hazardous waste. Site can be closed.
Former fire-fighting training Area	McGregor Range Camp	RCRA investigation completed in 1999. No further action petition submitted to NMED in 2000.
Former storage area for drums of waste	McGregor Range Camp	RCRA investigation completed in 1999. No further action petition submitted to NMED in 2000.
Borrow pit excavation site	West of McGregor Range Camp	One orphaned drum found and removed; 24,000 cubic yards of soil removed—no more drums/contamination found. RCRA investigation completed in 1999. No further action petition submitted to NMED in 2000.
Closed open detonation area	McGregor Range Camp	Follow-up RCRA facility investigation conducted in 2002 to confirm 1997 results (no releases above screening levels). Site can be closed.
90-day storage site	McGregor Range Camp	Active. Used as accumulation point for wastes generated during large military training. Site within fenced compound.
McGregor oxidation pond	McGregor Range Camp	Active oxidation pond. Previous investigation confirms no human health risk. A follow-on investigation in 2003 will investigate if there is an ecological risk. Site fenced and signed.
Meyer oxidation pond	Meyer Range	Active oxidation pond. RCRA investigation completed in 1999. No further action petition submitted to NMED in 2000. Site fenced and signed.

SOURCE: Locke 2003

game and gathering indigenous plant foods. However, large Pleistocene species, such as mammoths, had become extinct and Archaic hunters focused on smaller game animals, particularly deer and rabbits. Ground stone tools indicate that Archaic peoples relied more on plant foods and processed those foods intensively.

The subsequent period from about A.D. 200 to about 1400 or 1500 is called the Ceramic era. The Ceramic era represents a time of increased population, increased reliance on farming, and more settlements occupied year round. Most of the Ceramic era sites within McGregor Range are classified as the Jornada, or lowland branch, of the Mogollon culture. The Mogollon cultural system collapsed or changed so drastically in the mid-1400s that it virtually disappears from the archaeological record.

When the first Spanish expeditions passed through south-central New Mexico in the 1580s, the southernmost puebloan peoples they encountered were the Piros in the Rio Grande Valley about 150 miles north of El Paso, well north of the McGregor Range. The Spanish reported finding various groups of hunters and gatherers to the south. The Mansos were reported in the El Paso area ranging north along the Rio Grande, the Janos and Jocomes ranged west of the Rio Grande, and the Sumas and Jumanos were farther to the south. Very little is known about these peoples, who were decimated by warfare or blended into Mexican or Apache societies. Descendents of Tigua (Tiwa) and Piro refugees who moved south with the Spanish after the Pueblo Revolt of 1680 reside at Ysleta del Sur Pueblo on the southern edge of El Paso, Texas. A composite community of Tigua, Piro, and Manso Indians formed a daughter colony known as Tortugas in Las Cruces some time between 1850 and 1900. Tortugas was formally incorporated in 1914, but because of the degree of cultural disintegration, the Federal government has not approved the colony's request for formal recognition as an Indian tribe (Houser 1979).

By the late 1600s, Apaches moved into southern New Mexico and came to dominate this territory. The Apaches relied primarily on hunting and gathering, but practiced some farming in selected locations. The Apaches often were in conflict with the Comanche's to the east, the Spanish to the south, and the Piro Pueblos who abandoned their villages because of Apache raiding.

Early Spanish settlement in New Mexico focused on the Rio Grande Valley well to the north of McGregor Range. The Spanish waged campaigns against the Apaches in southern New Mexico but did not settle in the region. Mexico gained independence from Spain in 1821, and Mexican agricultural settlement began expanding north from the El Paso area in the 1840s with the founding of Doña Ana and Las Cruces.

Mexico lost New Mexico to the United States as a result of the Mexican War of 1846-1848, and adjustments of additional territory through the Gadsden Purchase ratified in 1854. The U.S. Army was able to control the Apaches only after the Civil War ended and more troops were available. By the beginning of the 1870s, relations with the Apaches shifted from hostilities to reciprocal trade, and many Apaches were relocated to reservations. The Mescalero Reservation was established in 1873 about 30 miles north of McGregor Range.

Ranching was the major theme of historic Euro-American settlement on McGregor Range. Large scale cattle ranching dates from the 1880s—the decade when railroads arrived in the territory and grasslands thrived under wetter than normal conditions. Droughts, institution of more sustainable grazing practices, falling cattle prices after World War II, and development of a feedlot cattle business greatly reduced the size of herds on the ranges of the Planning Area.

During World War II the Federal government leased and purchased several large ranches for use as a military training facility, including Oliver Milton Lee's Sacramento Cattle Company, and the Fleck, McGregor, and Atkins family ranches. After the war, the Department of the Army began to acquire other ranches during the late 1940s for McGregor Range, which was first developed as an anti-aircraft artillery firing range and then for missile testing and training. Some of the abandoned ranch facilities are important properties representing the history of ranching.

Agriculture continues to be important to the regional economy today, along with growing trade across the international border and "Sun Belt" retirement. Military training and research continues to dominate the ongoing uses of the McGregor Range, although part of McGregor Range continues to be used for grazing, and transportation and utility corridors cross the Range.

3.16.1.1 Cultural Resource Management

Inventory and evaluation are basic elements of BLM cultural resource program. BLM supports the New Mexico Cultural Resource Information System (NMCRIS) database developed by the State Historic Preservation Office and relies on that system to compile and maintain inventory data. Inventory involves analysis of scientific, socio-cultural, and public values of cultural resources, and results in allocation of cultural resources to one of five use categories (scientific use, conservation for future use, traditional use, public use, and experimental use) or classification as discharged from management. Inventory also can result in nominations of properties to the National Register of Historic Places (National Register).

Protection and utilization are other components of the primary cultural resource program. Protection measures are developed in response to evaluation of resource use values and degree of threat. Protection is provided through application of both administrative and physical measures. Administrative measures can include actions such as designation of no occupancy zones, road closures, and patrol and surveillance. Physical measures could include fencing, stabilization, and rehabilitation.

The support or compliance function of the cultural resource program stems from other BLM programs or other authorized activities on public land managed by BLM. The goal of the support function is to implement projects in a manner that avoids adverse effects to significant cultural resources whenever feasible or to mitigate unavoidable adverse effects as warranted.

To address management of withdrawn public land within McGregor Range, the BLM amended the White Sands RMP most recently in 1990. That amendment defined the objective of the cultural resources component of the plan as managing "cultural resources on withdrawn public land on McGregor Range in a manner that protects and provides for the proper use of those resources." A 1990 MOU between BLM and Fort Bliss addressed coordination of the cultural resource programs of the two agencies. The MOU stipulates that the proponent of an undertaking, whether BLM or Fort Bliss, is responsible for permitting and oversight of cultural resource investigations conducted in compliance with Section 106 of the National Historic Preservation Act.

In an average year since completion of the 1990 RMP amendment, the BLM cultural resource program for the Caballo (formerly White Sands) Resource Area has reviewed more than 30 projects and completed intensive cultural resource survey of approximately 2¼ sections. Forty to 50 archaeological and historical sites have been discovered and recorded annually. An average of 13 sites were checked each year, and signs were installed at four sites to inform visitors that it is illegal to collect artifacts or excavate in sites without proper permits. An average of two sites were enhanced or maintained annually to prevent disturbance or promote public interpretation. Public interpretation efforts focused on the historic mining town of Lake Valley and the Three Rivers Petroglyphs Site, neither of which is on McGregor Range.

An average of nine sites were studied annually to mitigate impacts of authorized projects. Those projects were planned and implemented in consultation with the State Historic Preservation Office and affiliated tribes. Although BLM has contacted tribal groups, the tribes have provided no documentation about places of traditional cultural significance.

Fort Bliss, rather than the BLM, has initiated most undertakings on McGregor Range. Fort Bliss has operated a cultural resource program since the 1970s, and sponsored numerous surveys. These surveys have encompassed about half of McGregor Range and resulted in recording more than 3,700 archaeological and historical sites. A substantial survey effort was completed recently in conjunction with preparation of legislative and programmatic environmental impact statements for the renewal of the McGregor Range withdrawal and Fort Bliss Mission and Master Plan (U.S. Army 1999a, 2000). Fort Bliss also has developed and operates a curation facility for storing artifacts and project documentation.

Fort Bliss initially prepared and adopted a historic preservation plan in 1982 (U.S. Army 1982). Cultural resources on all Fort Bliss facilities currently are managed in accordance with the integrated cultural resources management plan that was updated in 2000 (U.S. Army 2000b). That integrated plan was prepared, in consultation with the New Mexico State Historic Preservation Office and the Advisory Council on Historic Preservation. Cultural resources on McGregor Range, within areas affected by Fort Bliss activities, are managed in accordance with standard operating procedures defined in the 2000-2005 plan, which is scheduled to be updated again in 2005 (Sitton 2004).

Fort Bliss also has developed significance standards for prehistoric sites based on potential to yield important information (Abbott et al. 1996). A scoring strategy considers that information potential, as well as chronometric potential and considerations of natural context and integrity. Sites that are scored above a minimum threshold value are considered eligible for the National Register under Criterion D. Contexts for evaluating historic sites are based more on a case-by-case analysis.

Fort Bliss has contacted the Mescalero Apache and Tigua about traditional cultural places and continues to consult with those groups about places of traditional cultural significance as well as treatment of human remains associated with archaeological sites. Fort Bliss also sponsored a study of potential Apache sites, in consultation with the Mescalero Apache Tribe. Only two or three protohistoric or historic sites were firmly identified as being of Apache origin, but approximately another half dozen sites have some evidence of an Apache affiliation (Baugh and Sechrist 2001).

Holloman Air Force Base, working with the COE and Fort Bliss, also sponsored cultural resource survey and archaeological data recovery studies in support of development of a new target complex on Otero Mesa. The U.S. Air Force Air Combat Command has executed an MOU with BLM that stipulates that the Air Force will coordinate with BLM to manage cultural resources that could be affected by expanded German Air Force operations on McGregor Range.

3.16.2 Archaeological and Historical Sites

Archaeological and historical resources are the most common types of cultural properties on McGregor Range. Information about recorded archeological and historical sites is consolidated in two cultural resource databases. The NMCRIS database includes information on about 809 archaeological and historical sites recorded within the Planning Area. Information about the extent of survey coverage has not yet been incorporated into this database.

Fort Bliss also maintains a GIS database to document the scope and results of studies sponsored by the U.S. Army in conjunction with operation of McGregor Range and other Fort Bliss military facilities. The Fort Bliss database includes information about 3,730 sites, including 3,442 prehistoric sites, 210 historic sites, and 78 sites with both prehistoric and historic components. About 831 sites documented in the Fort Bliss database have been incorporated into the NMCRIS database. Fifty-nine sites in the NMCRIS database have not been incorporated into the Fort Bliss database.

The sites in the Fort Bliss database were recorded during survey of approximately 535 square miles, which is about 49 percent of the 1,091 square miles within McGregor Range. These surveys were conducted between 1975 and mid-2001. GIS analysis of 3,007 recorded archaeological and historical sites associated with documented surveys indicates that site density varied among six environmental zones that characterize McGregor Range (Table 3-10).

The lowest average density is about 2 sites per square mile in the Hueco Mountains, and the highest is about 11 sites per square mile in the basin aeolian zone. The extent of survey coverage among the environmental zones varied from about 37 to 77 percent. Based on the average densities within each zone, it is estimated that approximately 3,000 archaeological and historical sites on McGregor Range have yet to be found and recorded.

The archaeological and historical sites recorded on McGregor Range are diverse. The prehistoric sites are primarily scatters of artifacts, sometimes with remnants of hearths and pit features. Some rock shelters and substantial village sites also have been recorded, along with rock art sites. Historic era sites include ranches, Oliver Lee's water pipelines, reservoirs, railroad related sites, part of the Turquoise townsite, and military sites including Cold War Nike test sites.

Evaluating the significance of recorded archaeological and historical sites is an ongoing, dynamic aspect of the Fort Bliss cultural resource management program. Currently, the significance evaluations of about 65 percent of the recorded sites in the Fort Bliss database have not been completed. Commonly, archaeological testing has been recommended to further evaluate these sites. Until evaluated, these sites and similar unrecorded sites are assigned to BLM's category of scientific use (BLM Manual 8110.4). Sites in this category need not be conserved if a data recovery plan can be implemented to make appropriate use of the site's research importance.

About 26 percent of the archaeological and historical sites documented in the Fort Bliss database have been evaluated as lacking important values worthy of preservation. Therefore, these sites and similar unrecorded sites are considered ineligible for the National Register and are assigned to BLM's "discharged from management" category and they do not constrain other land uses.

About 9 percent of the recorded sites have been evaluated as eligible for the National Register, and most would be assigned to the scientific use category. Data recovery studies have been conducted at two of these sites to mitigate impacts of activities on the Range. No sites on McGregor Range have been listed on the National Register, but one site, Escondido Ruin (LA 458, FB 9569), is listed on the New Mexico State Register of Cultural Properties. Fort Bliss consultants have drafted National Register nominations for Escondido Ruin (Reycraft and Railey 2000a) and six other resources that are completely or primarily on public land within

TABLE 3-10
ARCHAEOLOGICAL AND HISTORICAL SITE DENSITY BY ENVIRONMENTAL ZONE

Zone	Total Area (Mile^2)	Surveyed (Mile^2)	%	Number of Pre-historic Sites	Pre-Historic Sites/ Mile^2	Number of Historic Sites	Historic Sites/ Mile^2	Total Sites	Total Sites/ Mile^2	Estimated Number of Unrecorded Sites
Basin Alluvial	2,23.5	1,00.2	45	582	5.8	34	0.3	616	6.1	758
Foothill-Bajada	3,66.7	2,10.2	57	740	3.5	52	0.2	792	3.8	589
Sacramento Mountains	87.3	36.9	42	149	4.0	14	0.4	163	4.4	223
Basin Aeolian	1,93.3	99.2	51	1,039	10.5	58	0.6	1,097	11.1	1,041
Otero Mesa	1,96.7	73.3	37	277	3.8	33	0.5	310	4.2	522
Hueco Mountains	18.4	14.2	77	23	1.6	6	0.4	29	2.0	9
Totals	1,085.9	5,34.0	49	2,810	5.3	197	0.4	3,007	5.6	3,142

SOURCE: U.S. Army 2001b

McGregor Range, including the following properties:

- One historic ranching site in the northeastern part of McGregor Range: Don Lee Ranch (LA 37043, FBH 139) (Holmes 1999)
- Two prehistoric village sites in the southern and northwestern part of McGregor Range: Dos Manos Site (LA 37313, FB 9552) (Reycraft and Railey 2000b) and McGregor Site (LA 31179, FB 9603) (Reycraft and Railey 2000c)
- Two prehistoric cave sites near the center of McGregor Range: Pendejo Cave (LA 37034, FB 9366) (Reycraft 2000) and Pintada Rock Shelters (LA 37037, FB 9369) (Reycraft 1999)
- One historic railroad station site along the west-central boundary of McGregor Range: Turquoise Railroad Site (LA 37044, FBH 141) (Holmes 2000).

These seven properties and any similar unrecorded sites are assigned to the BLM category of conservation for future use. This classification indicates these resources are worthy of segregation from all other land or resource uses that would threaten maintenance of their current condition or setting. Some of these sites may be candidates for being assigned to BLM's public use category, depending on compatibility with the Fort Bliss mission. Such resources are appropriate for public interpretation, or related educational and recreational uses.

3.16.3 Traditional Cultural Places and Lifeway Values

Federally recognized tribes in the vicinity of McGregor Range include the Mescalero Apache and Ysleta del Sur Pueblo (Tigua Reservation). When the 1990 White Sands RMP Amendment was prepared, no American Indian religious sites or traditional cultural places had been identified within McGregor Range. Since completion of the 1990 White Sands RMP Amendment, Fort Bliss and Holloman Air Force Base have consulted with the Mescalero Apache and Tigua regarding traditional cultural places on McGregor Range.

The Mescalero Apache regard several types of geographic features as having spiritual significance, including caves, springs, and certain mountain peaks, and the tribe has expressed interest in plant collecting areas and trails. Fort Bliss staff accompany members of the Mescalero Apache Tribe during annual trips onto McGregor Range to gather agave hearts in the foothills of the Sacramento Mountains for use in ceremonies. However, the Mescalero Apache Tribe has not provided information about specific places on McGregor Range that they consider significant traditional cultural resources, has not suggested any such places are eligible for the National Register, and has not expressed interest in listing such places on the National Register. The Tigua Tribe has asserted cultural affiliation with the McGregor Range, but has not identified any traditional places of concern.

Traditional concerns of many tribal communities focus on treatment of human remains associated with archaeological sites. In 1996, the BLM, in cooperation with the Forest Service, completed a cultural affiliation study for New Mexico and Arizona cultures in compliance with the Native American Graves Protection and Repatriation Act (USDA, Forest Service, Southwestern Region 1996). The purpose of this study was to determine which American Indian groups are culturally affiliated with human remains, funerary objects, sacred objects and objects of cultural patrimony associated with archaeologically defined cultures. The three archaeological cultures relevant for McGregor Range and its environs include the Jornada Mogollon (A.D. 200-1400), Upland Jornada Mogollon (A.D. 500-1450), and the Mogollon/Lowland (200 B.C.-A.D. 1400/1450). No modern American Indian groups were definitely identified as culturally affiliated with either the Jornada, Upland Jornada, or Lowland Mogollon archaeological cultures, but the Lowland Mogollon was identified as possibly associated with historic groups in northern Chihuahua that are now extinct, or possibly with the Piro.

Fort Bliss records indicate human remains have been reported at six archaeological sites on McGregor Range. Human remains, representing eight individuals, have been recovered from five of those sites. In accordance with the Native American Graves Protection and Repatriation Act, Fort Bliss staff inventoried and reviewed these remains and concluded they are not culturally affiliated with any of the tribes known to have occupied the region historically. The remains are stored at the Fort Bliss Curatorial Facility, and consultations regarding their disposition are ongoing.

3.17 PALEONTOLOGICAL RESOURCES

Paleontological resources constitute a fragile and nonrenewable scientific record of the history of life on earth. Once damaged, destroyed, or improperly collected, its scientific and educational value may be reduced greatly or lost forever. In addition to their scientific, educational, and recreational values, paleontological resources can be used to understand interrelationships between the biological and geological components of ecosystems over long periods of time.

Otero County has a broad diversity of geologic formations and structures. Because McGregor Range has been withdrawn for military use for many years, very little is known about the paleontological resources in the rocks and sedimentary deposits on the Range. Potential fossils that may be found on McGregor Range are based on the rock types and known paleontological resources found in those formations in surrounding areas. The surface geology is indicative of a high potential for paleontological resources (O'Neil 2001).

The geologic units range from almost two billion years old to the present. The formations of the early Paleozoic (limestones, sandstones, shales, and conglomerates) are widespread in southern New Mexico and represent nearly 320 million years of deposition of marine sediments with invertebrate fossils. A few heterostracan tessarae were found in glauconitic sandstone in the Virginia Mine in the northern part of the Sacramento Mountains. No Silurian vertebrates are known to occur in New Mexico. There are several reports of Devonian vertebrates (bone beds with abundant ichthyyoliths and conodonts) in the Sacramento Mountains (Zidek and Kietzke 1993).

The Mesozoic Era is known as the Age of Reptiles, which included dinosaurs. Outcroppings of Mesozoic rocks are very minimal in southern New Mexico. There are no Jurassic-aged rocks in southern New Mexico (Hunt and Lucas 1993a,b).

Cenozoic vertebrates have been located in several localities in Otero County. Fossil vertebrates have been found in late Eocene deposits in the nearby Caballo Mountains. The Miocene-Pliocene deposits exposed along the Rio Grande from Albuquerque to Las Cruces have produced a diverse fossil fauna assemblage of mammals such as camels, gomphotheres (stegomastodons, mastodons), horses, antelope, and more. A small limestone cave, located in the breaks of Otero Mesa on the McGregor Range, yielded more than 36,000 bones and bone fragments from the Pleistocene and Holocene including turtles, toads, frogs, lizards, snakes, various birds (vultures, roadrunners, quail, owls, turkeys, falcons, hawks), mammals (bats, shrews, wolves, foxes, bear, ferret, badger, horses, camels, deer, antelope, bison, squirrel, mice, kangaroo rats, woodrats, voles, and rabbits). The species identified from this cave provide information on the climate and animals from the past (Harris 1995).

This information is only a partial indication of the types of fossils that have or may be found in geologic units in the McGregor Range area. Many areas have not been explored or surveyed for paleontological resources.

3.18 RECREATION

Regionally, south-central New Mexico has extensive open space and unique resources providing opportunities for a variety of recreational uses. Much of the land is public domain and generally available to the public for a wide range of uses. White Sands National Monument, Carlsbad Caverns National Park, Guadalupe National Park, and Organ Mountains Recreation Area all provide outstanding opportunities for interpretive experiences, and have both developed recreational facilities and primitive backcountry areas. Lincoln National

Forest provides diverse opportunities for hunting, camping, hiking, and exploring nature. In addition, there are numerous State parks available for public use. Several WSAs in the region are an indication of the relative lack of infrastructure and abundance of open space in much of the area (U.S. Army 1998a).

McGregor Range offers a variety of settings that are suitable for an assortment of recreational activities; however, safety concerns associated with unexploded ordnance (UXO) and incompatibility with military training limit the availability of much of McGregor Range for public recreation. Limits on recreational use have preserved scenic quality, solitude, cultural resources, and natural habitat that contribute to the area's potential use for recreation (U.S. Army 1998a). In general, recreational potential is highest in the areas currently used for grazing, where there is less danger of UXO.

3.18.1 Recreation Opportunity Spectrum

Recreational opportunities on McGregor Range have been defined consistent with the Recreation Opportunity Spectrum (ROS) inventory that was completed in 1984 for McGregor Range. The ROS provides a framework for inventory, planning, and management of recreation resources. The ROS recognizes that people differ in their needs and the recreation experience they desire. Also, the resource base is not uniform; it varies with its potential for providing recreational experiences. The ROS does not designate areas as open or closed; rather, it allows managers to characterize all possible combinations of recreational opportunities and resources and arrange combinations of activity, setting, and experience opportunities along a continuum. Once these opportunities have been defined, managers are able to determine which opportunities are provided and are able to assess the impacts of other resource actions on the recreation resource (BLM 1988a).

The ROS is divided into six classes: primitive, semiprimitive nonmotorized, semiprimitive motorized, roaded natural, rural, and modern urban. Based on a previous inventory conducted by BLM in 1984, only three ROS classes occur on McGregor Range (BLM 1988a). The three ROS categories present include: (1) 144,642 acres of roaded natural area; (2) 519,821 acres of semiprimitive motorized area; and, (3) 11,266 acres of semiprimitive nonmotorized area (associated with Culp Canyon WSA) (note: acreage derived from GIS data). These acreages may vary from previous estimates because more accurate boundary data are available. Though the ROS has been defined for all lands on McGregor Range, public recreation opportunities are limited because the military mission takes precedence. Lands managed by the Forest Service have not been classified.

Recreational use on McGregor Range is co-managed by BLM and the U.S. Army, and is allowed on a noninterference basis with the military mission. The primary recreational uses occurring on McGregor Range are hiking, picnicking, hunting, bird watching, and observing nature. OHV use occurs in some areas of McGregor Range, though it is restricted to existing roads and trails. Previous uses included hunting and camping associated with hunting on withdrawn public land within McGregor Range. Recreational activities are allowed only in areas with public access, which includes BLM grazing units, identified as McGregor Range training areas 10 through 23 (see Map 3-2), and Culp Canyon WSA, subject to the use permits issued by the U.S. Army or BLM (with U.S. Army approval).

Use permits, required for all recreational activities on McGregor Range, can be obtained from the BLM in Las Cruces or from the U.S. Army at McGregor Range Camp. Although the BLM may issue permits, all recreational permits must be reviewed by the Range Development and Enforcement Office. Public access is only permitted in areas that are considered safe and compatible with current and past military activity. On a weekly basis, the Range Scheduling Office issues a roster of areas that are available for nonmilitary use. Public access to training areas 29, 30, 31, and 32 (shown on Map 3-2) is never permitted due to potential hazards from ordnance and explosive hazards and debris in active impact areas (U.S. Army 1998a). In addition, training areas 24 through 28 are closed to non-Department of Defense personnel (Locke 2003).

3.18.2 Hunting

NMDGF manages hunting in the State of New Mexico. For big game (except antelope), Game Management Unit 28 overlaps entirely with the boundaries of McGregor Range. For antelope, Antelope Management Unit 29 encompasses about twice the area of McGregor Range (extending primarily toward the east). NMDGF conducts big game (i.e., antelope and deer) and small game hunts in coordination with the U.S. Army and BLM (big game hunt data for 1985 through 2003 are shown in Table 3-11). These hunts were managed by NMDGF consistent with Federal laws and regulations. However, NMDGF canceled big game hunts for 2001 through 2003 on McGregor Range based on U.S. Army recommendations (NMDGF 2004b). Deer and antelope hunt data available for 2000 through 2003, as shown in Table 3-11, reflect hunting that occurred within hunt management units that extend beyond the boundaries of McGregor Range. The Range has been reopened to big game hunting for hunt year 2004-2005 (NMDGF 2004a). NMDGF considers whether to allow hunting on McGregor Range annually, with input from the U.S. Army and BLM.

Though big game hunting did not occur during several years, small game (e.g., dove, quail) hunting was permitted (Bankston 2002).

TABLE 3-11
HUNT DATA FOR GAME MANAGEMENT UNITS THAT INCLUDE McGREGOR RANGE[1]

Hunt Year	Antelope[2]			Deer		
	Number of Licenses Issued (public and private)	Success Rate (percent)	Total Harvest (from returned surveys)	Number of Hunters (public and private)	Success Rate (percent)	Total Harvest (from returned surveys)
1985-1986	56	57.1	32	857	47	407
1986-1987	122	63.1	77	407	59	239
1987-1988	106	59.3	51	317	59	188
1988-1989	162	69.2	45	--	--	NO HUNT
1989-1990	126	62.9	37	--	--	NO HUNT
1990-1991	188	51.9	54	--	--	NO HUNT
1991-1992	--	--	NO HUNT	--	--	NO HUNT
1992-1993	--	--	--	200	65.5	131
1993-1994	195	42	48.8	203	48.0	101
1994-1995	151	90	33	206	39.3	81
1995-1996	90	38.5	17	--	--	NO HUNT
1996-1997	31	58	18	--	--	NO HUNT
1997-1998	21	95	20	53	67.9	36
1998-1999	23	91	21	107	62.6	67
1999-2000	35	67	31	33	55.6	19
2000-2001	65	97	26	35	37.1	13
2001-2002[3]	65	85	23	--	--	--
2002-2003[3]	53	80.5	24	--	--	--

SOURCE: New Mexico Department of Game and Fish 2002

NOTES:

No data available (-). The unit was either closed or no data was available from NMDGF for the hunt unit

[1] Data were compiled for all weapon types.

[2] Data were gathered from Antelope Management Unit 29, which includes lands outside the boundaries of McGregor Range.

[3] Antelope hunt data for the years 2001-2002 and 2002-2003 are still in draft form; deer hunting on McGregor Range was cancelled.

3.18.3 Camping

Previously, camping has been allowed on McGregor Range during scheduled hunts. Camping by the public is restricted due to safety concerns associated with potential UXO and because frequent camping would constrain military use, since it would be logistically difficult and time consuming to clear McGregor Range of recreationists on a regular basis before conducting military missions (U.S. Army 1998a).

3.18.4 Off-highway Vehicle Use

OHV use is subject to three levels of designations on public land as follows:

- Areas open to OHV use
- Areas limited to existing roads and trails, which does not include dry washes
- Areas closed to all OHV use

OHV use on the majority of McGregor Range is limited to roadways and established trails. The limited-use OHV designation protects watershed resources and cultural resources, and provides for public safety (BLM 1990a). The acreage of the accessible areas potentially available for limited OHV use is about 286,000 acres (based on GIS data and excluding lands within McGregor Range that are administered by the Forest Service). Though designated as limited, the U.S. Army prohibits public access in the remaining areas, generally west of Otero Mesa and south of New Mexico Highway 506. Fort Bliss limits military training OHV maneuvers on McGregor Range to TA 8, which is located in the southwestern portion of McGregor Range, as shown on Map 3-2.

Only 40 acres within the Planning Area, around the Escondido Pueblo archaeological site, are designated as closed to OHV use. A two-track road was developed in this area after the 1990 RMPA was completed, and now provides vehicle access to the site. Though OHV use is restricted throughout most of McGregor Range, BLM recognizes that OHV use does occur on and off roads and along trails by visitors in the northern areas of McGregor Range.

3.19 VISUAL RESOURCES

Visual resources include the natural and man-made physical features that give a particular landscape its character and value. The feature categories that form the overall impression a viewer perceives in an area include landform, vegetation, water, color, adjacent scenery, scarcity, and man-made (cultural) modifications (BLM 1986).

3.19.1 Landscape Character and Scenic Quality

The natural context of McGregor Range is arid Chihuahuan Desert, characterized by vistas framed by distant mountain ranges or escarpments, dominated by the overlying blue sky. Dominant colors include light pastels of limestone, sand, and desert vegetation. Variations in elevation and precipitation result in a range of vegetative regimes with indistinct boundaries. These create a patchwork of varying textures and patterns in the middle and distant landscape, caused by bunched or continuous grassy vegetation and areas of scattered, shrubby vegetation (U.S. Army 1998a). The foothills appear small compared to the massive, blocky form of Otero Mesa, but they provide some contrast in texture due to their piñon-juniper cover (BLM 1988a). In general, the natural landscape does not have outstanding features of visual interest such as dramatic landforms with high relief or highly contrasting variations in color or texture. The major contributors to scenic quality within McGregor Range are the Sacramento Mountains and the Otero Mesa escarpment.

Both the natural setting and human modifications define the cultural landscape. Throughout the area, man-made features are evidence of current and past uses and events. These include (but are not limited to) roadways (primarily unpaved), fences, wooden and pipe corrals, isolated homesteads, power lines, watering tanks, windmills, pipelines, antennae, and satellite dishes (U.S. Army 1998a).

3.19.2 Viewer Sensitivity

The evaluation of viewer sensitivity typically considers the type of users, amount of use, duration of view, adjacent land uses, public interest and special management areas (BLM 1986). Sensitive viewing areas on McGregor Range are limited due to the restricted public access to the area. The more sensitive areas would include the Culp Canyon and Sacramento Escarpment WSAs, due to their relatively remote and pristine conditions; Otero Mesa, a dominant feature for viewing; U.S. Highway 54 and New Mexico Highway 506, because of their accessibility; and significant cultural resource sites.

3.19.3 Distance Zones

Distance zones are established based on perception thresholds. Perception of form, line, color, and texture changes as distance from a viewing area becomes greater. Landscape elements tend to become less obvious and detailed at greater viewing distances. The elements of form and line become more dominant than color or texture at longer viewing distances. The BLM's Visual Resource Management (VRM) system uses the following distance zones to evaluate the potential visibility:

- Foreground – the limit of a viewed area in which details are perceived and obvious. Textural and other aesthetic qualities are normally perceived within this zone (0-0.25 mile to 0.5 mile).
- Middleground – the zone in which details of foliage and fine textures cease to be perceptible. Vegetation begins to appear as outlines or patterns (0.25-0.5 mile to 3-5 miles).
- Background – those portions of the landscape where texture and color are subordinate and the landforms become the most dominant elements (3-5 to 15 miles).

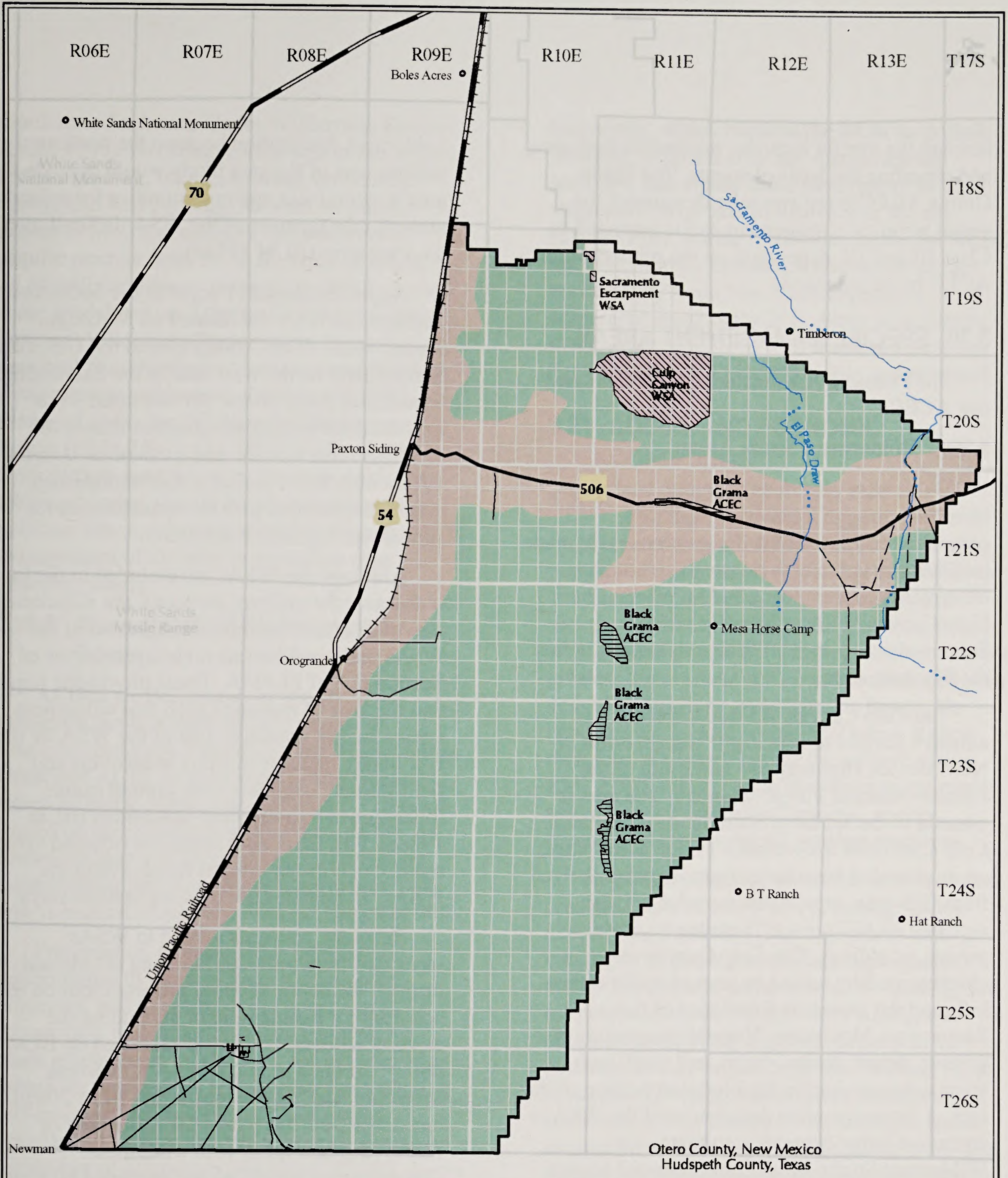
Most of the man-made features on McGregor Range, such as fences, wooden and pipe corrals, isolated homesteads, watering tanks, and windmills are noticeable in the foreground, but are either not perceptible, or only defined by subtle lines or forms in the middle and distant landscape. A few man-made features, including roads, power lines, antennae, and satellite dishes, appear more noticeable at all viewing distances. However, these features do not dominate in middleground or background views.

3.19.4 Visual Resource Management Classes in Context of the Decision Area

BLM completed the VRM inventory for McGregor Range in 1977, with some updates in 1987 (BLM 1988a). Each VRM class was determined through a matrix, which combines scenic quality, visual sensitivity, and distance zones. The purpose of the VRM system is to provide an inventory of visual resources and to develop management objectives according to the visual quality and sensitivity of an area. BLM lands are classified as VRM Classes I, II, III, and IV (from the most valued and sensitive to alteration, to the least). BLM VRM Classes for McGregor Range are shown on Map 3-9.

McGregor Range includes landscapes in Classes II, III, and IV. The Culp Canyon and Sacramento Escarpment WSAs are rated as Class II to preserve the character of the existing natural landscape in those areas. The Class II designation provides that changes to scenic quality resulting from management activities should not be evident. Areas along U.S. Highway 54 and New Mexico Highway 506 are designated Class III, where changes in the basic elements of the landscape may be evident but should remain subordinate to the existing scenic quality. Changes should repeat the basic elements found in predominant natural features of the characteristic landscape.

The remainder of McGregor Range is rated as Class IV, where the level of change to characteristic landscape can be high. This classification is applied to areas where visual sensitivity is lower due to lower scenic quality and viewer numbers in remote areas away from public access roadways. The intent of this class is to provide for management activities that require major modification of existing character of the landscape. However, every effort should be made to lessen the impact of these activities


R06E
R07E
R08E
R09E
R10E
R11E
R12E
R13E
T17S
T18S
T19S
T20S
T21S
T22S
T23S
T24S
T25S
T26S
Boles Acres
White Sands National Monument
70
Sacramento River
Sacramento Escarpment WSA
Timberon
Culp Canyon WSA
El Paso Draw
Paxton Siding
506
54
Black Grama ACEC
Black Grama ACEC
Mesa Horse Camp
Orogrande
Black Grama ACEC
Black Grama ACEC
B T Ranch
Hat Ranch
Union Pacific Railroad
Newman
Otero County, New Mexico
Hudspeth County, Texas

Visual Resource Management and Special Management Areas

McGregor Range RMPA/EIS

October 21, 2004

Location in New Mexico

Universal Tranverse Mercator
Zone 13, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

SCALE 1 : 500,000

Legend:

Visual Resource Management Classifications:

- ▭ Class II
- ▭ Class III
- 🟩 Class IV
- ▭ Area Not Classified

Special Management Areas:

- ▨ Wilderness Study Areas (WSA)
- ▤ Areas of Critical Environmental Concern (ACEC)

General Reference:

- Primary Roads
- Secondary Roads
- County Roads
- Paved or Military Restricted Roads
- Public Land Survey System
- Union Pacific Railroad
- Streams
- ○ Geographic Place

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. Spatial information may not meet National Map Accuracy Standards. This information may not be updated without notification.

NOTE: VRM classifications are derived from an overlay technique that combines the maps of scenic quality, sensitivity levels, and distance zones. Management classes describe the different degrees of modification allowed to the basic elements of the landscape.

SOURCE: Base Map information: BLM, Las Cruces Field Office, 2001
Visual Resource, Special Management Area Information, BLM, Las Cruces Field Office, 2001

URS

Map 3-9

through the careful location, minimal disturbance, and repeating the basic elements. The Black Grama ACEC is not specially designated for visual resource management and is managed as Class III and IV, depending on the portion of the ACEC being managed.

3.20 SPECIAL MANAGEMENT AREAS

The Planning Area includes two WSAs and one ACEC.

3.20.1 Wilderness Study Areas

Wilderness resources on public land were identified through intensive inventories completed in 1979. WSA designations were made in 1980. Areas found to possess wilderness characteristics were identified as WSAs. The Culp Canyon WSA and portions of the Sacramento Escarpment WSA are located within the Planning Area.

The Culp Canyon WSA is located in the northern portion of McGregor Range, north of New Mexico Highway 506 and south of the Lincoln National Forest boundary. The area is situated in the southern Sacramento Mountains. Culp Canyon WSA includes 11,266 acres based on its recorded boundaries (note: acreage derived from GIS data; previously recorded acreage included 10,937 acres). There are no State or private inholdings. The Culp Canyon is characterized by rolling to very steep limestone hills and the mountain footslopes of the Sacramento Mountains. Vegetation consists of grasses, desert shrubs, yucca, and cacti, with some piñon-juniper in the northeast portion of the unit. A more complete description of the WSA is contained in the New Mexico Statewide Wilderness Study: Final Environmental Impact Statement: Appendix 43 Culp Canyon Wilderness Analysis Report (BLM 1988c). The 1988 statewide study provides an evaluation of wilderness values found in the Culp Canyon WSA. Specifically, the area is valued for its outstanding opportunities for solitude and primitive, unconfined recreation such as hiking, hunting, horseback riding, and backpacking. Though these values are present, the study did not recommend the Culp Canyon WSA for wilderness designation because the continued military use of the area likely would degrade the area's naturalness and opportunities for solitude, making management of the WSA difficult over the long term (BLM 1988c).

Approximately 211 acres of the Sacramento Escarpment WSA are located on McGregor Range, south of and contiguous to the U.S. Forest Service land on the west face of the Sacramento Mountains; these Forest Service lands were evaluated for wilderness qualities during the Roadless Area Review and Evaluation II in the 1970s. This WSA includes four undisturbed major canyons that provide opportunities for solitude and primitive recreation.

Although the WSAs are included in the land withdrawn for military purposes, the withdrawal also mandates continued management of the WSAs under wilderness review provisions of Section 603 of FLPMA. These provisions require that the area be managed such that wilderness values are not impaired. Use of the WSA by the U.S. Army includes military maneuvers and field-training exercises with ground troops (dismounted training) and helicopters (BLM 1988c). Fort Bliss does not allow off-road vehicle travel or military weapons firing within the WSAs; all vehicles use existing vehicle ways.

Resource concerns related to WSAs identified from previous planning efforts and through the public scoping process focus on the potential for maintaining or expanding the existing wilderness study area. Based on BLM policy, outlined in H-6310-1 – Wilderness Inventory and Study Procedures (BLM 2001d), responses from the public for expanding or identifying new areas with wilderness characteristics should be accompanied by a map and a detailed narrative describing the area's wilderness characteristics, and how that information significantly differs from the information in prior inventories conducted by BLM. No such comments have been received by BLM.

Wilderness resources within the Culp Canyon and Sacramento Escarpment WSAs have been inventoried and currently are managed by the BLM under the Interim Management Policy and

Guidelines for Lands Under Wilderness Review (BLM 1995). Acceptable uses within the WSAs include grazing, hiking, hunting, horseback riding, and backpacking. As with all public access to McGregor Range, these activities require permits from the U.S. Army or BLM. BLM will continue to manage the WSAs under these guidelines until the area is added to the National Wilderness Preservation System or removed from further wilderness consideration. If designated as wilderness, the area would be managed under the Wilderness Management Policy (BLM 1981). If a WSA were released from further consideration, the area would be managed under general BLM management policies, which generally would not change BLM management of the area or permitted uses (Sanchez 2002).

3.20.2 Areas of Critical Environmental Concern

ACECs are designated by the BLM to recognize, protect, and manage unique or sensitive resources. The McGregor Black Grama Grassland ACEC is composed of four separate stands of black grama grass totaling 3,718 acres (based on boundaries maintained by BLM). As shown on Map 3-9, three of the four areas are located along the Otero Mesa escarpment; one area is located along New Mexico Highway 506.

Preservation of these areas provides opportunities to monitor natural ecosystem processes, and to establish the benchmarks for comparison with other managed or impacted black grama areas. In addition, the sites serve as a refuge for populations constituting the natural, self-maintaining diversity of black grama grassland. The sites provide a natural laboratory for studies of ecosystem processes in black grama grasslands, and offer a comparative measure against the effects of livestock grazing on other lands.

Grazing and recreational activities are not allowed in these areas. Public access is permitted under the same restrictions and regulations as other publicly accessible parts of McGregor Range. The ACEC is managed and maintained jointly through a cooperative agreement among the BLM, U.S. Army, and New Mexico State University, which requires the BLM to exclude livestock from the sites and discourage all activities that would cause disturbance to the vegetative cover and soil surface of the site (BLM 1978). Military activities inside the ACEC are limited to air operations and safety danger zones/safety footprints. The cooperative agreement requires the U.S. Army to minimize disturbance associated with drone retrieval and fire control, to the extent possible and practical.

3.21 SOCIAL AND ECONOMIC CONDITIONS

3.21.1 Study Area

Socioeconomic resources include populations, economies (including employment and earnings), housing, public services, and social attitudes and values. The Planning Area is wholly located in Otero County, which shares the greatest direct social and economic linkages with activities occurring on McGregor Range. No residents are located within McGregor Range; therefore, activities that are the subject of this RMPA/EIS that occur on the range are primarily associated with the use of mineral, energy, recreational, and livestock grazing resources.

Regional social and economic conditions are presented here in terms of (1) demographics, (2) economic activity, (3) employment and earnings, (4) disproportionately high minority and/or low-income populations, (5) housing, and (6) public services. For this RMPA/EIS, the socioeconomic study area was defined as the potential area of influence of the Planning Area to account for direct and indirect social and economic effects related to the activities under evaluation on McGregor Range public land. The area of potential influence includes the following geographic areas:

- Otero County, New Mexico, including the communities of Alamogordo, Cloudcroft, Tularosa, La Luz, Orogrande, Paxton, Timberon, and the Mescalero Apache Indian Reservation
- Doña Ana County, New Mexico, including the community of Las Cruces

- El Paso County, Texas, including the City of El Paso

3.21.2 Demographics

Table 3-12 shows selected demographic data for the tri-county area. Statistics for New Mexico and Texas are included for comparative purposes. Of the three counties, Otero County is the least populous. Doña Ana County (the second most populous county in New Mexico) is three times more populous than Otero County. El Paso County (the sixth most populous county in Texas) is 11 times more populous than Otero County.

All areas have very similar gender distribution, with the relative percentage of males and females in Doña Ana County matching the National average. However, all of the areas have a lower median age and greater youth and juvenile populations than the National average. El Paso County has the most notably younger population distribution, with a median age of 30 and nearly 37 percent of its population under the age of 21.

The distribution of race within the counties does not differ dramatically when compared to that of the states in which they occur, but do differ greatly from Nationwide statistics. All three counties have slightly higher percentage of whites than their state averages, with Otero County having the greatest difference. Both Otero and Doña Ana Counties have a lower percentage of American Indian/Alaska Natives than the State average (10.5 percent), with Doña Ana County (at 2.2 percent) differing more than Otero County (at 6.6 percent), with all being considerably higher than the National average (1.5 percent). All three counties have notably higher populations of persons of all races of Hispanic or Latino origin than the states in which they occur, with El Paso County having the greatest Hispanic or Latino population (78.2 percent). The National average (12.5 percent) of Hispanic/Latinos is considerably lower than all areas represented in Table 3-12. Asians, which represent 4.2 of the National population, represent 1.1 to 1.8 of the county populations in the study area.

Whereas Doña Ana County experienced a population growth rate during the 1980s that was four times the National average, the historic rates of population change in Otero County and El Paso County were generally greatest in the 1990s. Among the three counties, the most rapid population growth occurred in Doña Ana County from 1990 to 2000, where the average annual rate of change was recorded as 28.9 percent. The metropolitan statistical area for the City of Las Cruces, Doña Ana County's largest city, was ranked as the 27th fastest growing city within the U.S. by percent change in population from 1990 to 2000. El Paso County experienced the lowest population growth rate from 1990 to 2000 with an annual rate of change recorded at 14.9 percent. Conversely, the city of El Paso is the fifth largest city in the State of Texas and the twenty-third largest city in the United States per the 2000 Census. For the United States, the annual rate of change from 1990 to 2000 was 13.1 percent, which is much lower than the annual rates of change Otero, El Paso, and Doña Ana counties have experienced in the same 10-year timeframe (U.S. Census Bureau 1990, 2000a,b, 2001).

The projected population growth for 2005 to 2020 (15 years) shows that all areas within the region of influence will generally experience population growth that exceeds the National average. The population growth trend is expected to generally continue, but at a reduced rate (U.S. Census Bureau 2000b; University of New Mexico 1997; Texas A&M University 2001).

3.21.3 Employment and Earnings

The economic activity as it relates to employment and earnings in each county and community is discussed commensurate with the linkages between the counties and the communities and McGregor Range in the sections that follow. These economies have been growing in conjunction with the population increases in these areas.

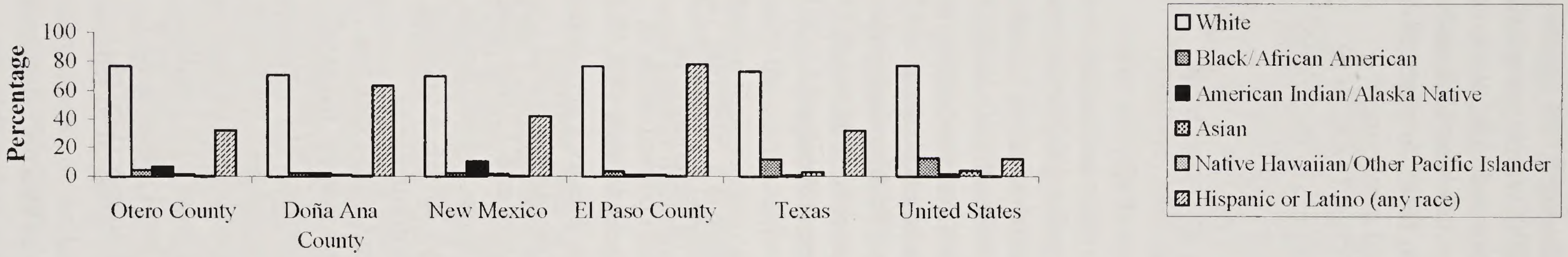
3.21.3.1 Otero County, Various Communities

Much of the Otero County area's economy has developed to accommodate the government agencies administering, managing, and using the Federal lands in the county. Government and

TABLE 3-12
SELECTED CENSUS 2000 DEMOGRAPHIC INFORMATION

	Otero County		Doña Ana County		New Mexico		El Paso County		Texas		United States	
Total Population	62,298		174,682		1,819,046		679,622		20,851,820		281,421,906	
Gender	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Male	30,994	49.8	85,782	49.1	894,317	49.2	327,771	48.2	10,352,910	49.6	138,053,563	49.1
Female	31,304	50.2	88,900	50.9	924,729	50.8	351,851	51.8	10,498,910	50.4	143,368,343	50.9
Age												
Under 21 Years	20,885	33.5	63,109	36.1	591,500	32.5	250,596	36.9	6,869,881	32.9	84,522,713	30.0
21 to 65 Years	34,117	54.8	93,061	53.3	1,015,321	55.8	362,953	53.4	11,909,407	57.1	161,907,440	57.6
Age 65 and Older	7,296	11.7	18,512	10.6	212,225	11.7	66,073	9.7	2,072,532	9.9	34,991,753	12.4
Median Age	33.8	--	30.2	--	34.6	--	30.0	--	32.3	--	35.3	--
Race and Ethnicity												
White	47,911	76.9	124,039	71.0	1,272,116	69.9	521,892	76.8	15,240,387	73.1	216,930,975	77.1
Black or African American	2,823	4.5	3,412	2.0	42,412	2.3	23,482	3.5	2,493,057	12.0	36,419,434	12.9
American Indian/Alaska Native	4,136	6.6	3,879	2.2	191,475	10.5	7,684	1.1	215,599	1.0	4,119,301	1.5
Asian	1,117	1.8	1,995	1.1	26,619	1.5	9,043	1.3	644,193	3.1	11,898,828	4.2
Native Hawaiian/Other Pacific Islander	159	0.3	301	0.2	3,069	0.2	1,211	0.2	29,094	0.1	874,414	0.3
Hispanic or Latino (any Race)	20,033	32.2	110,665	63.4	765,386	42.1	531,654	78.2	6,669,666	32.0	35,305,818	12.5

Graphical Representation of Race Distribution



SOURCE: U.S. Cen sus Bureau 2000a

government services represent the largest industry in the county, employing 8,992 or one-third of the work force in 2000, which is a greater percentage than both the State and U.S. employment in this sector, which was 13.6 and 19.5 percent, respectively, in 2000. In terms of earnings, the government and government services sector contributed $386.3 million or 37 percent of all personal income in the county. The services industry is the second largest employer in the county. In 2000, there were 7,744 jobs in the services industry and retail trade employed 4,254. While these jobs represent 28.3 percent and 15.6 percent of all jobs in the county, respectively, jobs in these sectors on average do not pay as well as the government and government services sectors. In personal income, the services sector totaled $149 million and the retail sector generated $58 million, amounting to just 14 percent and 6 percent of all personal income earned in the county. No other industry accounts for more than 15 percent of the work force (U.S. Bureau of Economic Analysis 2002a,b).

By comparison, agriculture is a relatively small factor in the economy of the county. In 2000, cash receipts for all farm commodities in the county (excluding livestock) totaled $18 million, and cash receipts for livestock accounted for an additional $13.3 million. An estimated 23,000 head of cattle and calves and 13,000 head of sheep and lamb were on farms and ranches in Otero County in 2001 (USDA 2000). A detailed study of economic activity attributable to livestock production in Otero County that was completed 10 years ago found that the livestock industry in Otero County generates $17.2 million per year, supporting 162 jobs and $4.5 million in income. That portion generated on public land in Otero County was estimated to be $10.5 million annually, accounting for 99 local jobs and $2.7 million in income within the county (USDA 1992).

The unemployment rate in Otero County, 5.9 percent in 2002, is slightly higher than the State and National average (U.S. Department of Labor 2003a, b). Based on the 2000 Census, both the average per capita annual income ($14,345) and median household income ($34,781) in Otero County are comparatively lower than the State and National averages. The per capita annual income for New Mexico is $17,261 and for the U.S. is $21,5878. The median household income for New Mexico is $39,425 and for the U.S. is $50,046 (U.S. Census Bureau 2000a).

3.21.3.2 Doña Ana County, City of Las Cruces

Doña Ana County is the second most populous and was the second fastest growing county in New Mexico in terms of population from 1990 to 2000. This growth is primarily in the vicinity of Las Cruces; other areas of the County are primarily rural in nature. The proximity of Las Cruces to McGregor Range is such that it is likely that a portion of the population would use the range for recreation, hunting, and other allowable public uses.

The government and government services sector constitutes 25.1 percent of all employment and amounts to $695 million in personal income for Doña Ana County. Like Otero County, the services industry employs more people, but equates to less earnings. The service sector, partly fueled by tourism, accounts for 29.3 percent of all employment, 22,096 jobs, and about $480 million in earnings (U.S. Bureau of Economic Analysis 2002a, b). The region is becoming an increasingly important trading corridor as a result of the North American Free Trade Agreement (NAFTA). Wholesale and retail trade combined employed about 14,000 or 18.6 percent of all jobs, translating into $232 million in earnings (U.S. Bureau of Economic Analysis 2002a,b).

Agriculture remains important to the local economy. Doña Ana County ranks second in the state in all farm commodities (excluding livestock) and had cash receipts totaling $280 million in 2000. Cash receipts for livestock account for an additional $199.6 million. In 2001, there were an estimated 79,000 head of cattle or calves on Doña Ana County farms or ranches (USDA 2000).

Like, Otero County, the per capita ($13,999) and median family income ($33,576) show that income in the county is comparatively lower than that of the state and the United States as a whole (U.S. Census Bureau 2000a).

3.21.3.3 El Paso County, City of El Paso

According to Census 2000, El Paso is currently the fifth largest city in the State of Texas and the twenty-third largest city in the United States. In recent years, international trade, stimulated by both NAFTA and the Mexican maquiladora program, has become an important and growing part of the local economy. The service sector, now nearly 27 percent of all employment and at $1.9 billion in earnings for the county, has experienced growth in health care, professional, and business services (Bureau of Economic Analysis 2002a,b). This increase most likely results from a growing need for services to support the rapidly expanding border region. El Paso's trade sector has remained strong throughout the past 5 years (City of El Paso 2002). Wholesale and retail trade, combined, constitute 21.7 percent of the El Paso County employment and $1.5 billion in earnings. The government and government services sector constitutes 20.5 percent of the workforce and $2.6 billion in annual earnings. While manufacturing employment still accounts for 12.0 percent of all employment and $1.6 billion in earnings (Bureau of Labor Statistics 2003a, b), this share has decreased significantly in recent years as a major portion of the apparel and textile industry has relocated south of the border (City of El Paso 2002).

The per capita income in El Paso County is $13,421 and the median family income is $33,421. These are lower than the U.S. average and Texas' $19,617 per capita income and $45,861 median family income (U.S. Census Bureau 2000a).

3.21.3.4 Minority and Low-Income Populations

The identification of minority and low-income populations responds to analysis required by Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. For this analysis, communities were identified as containing disproportionately high percentages of minority populations if either of two criteria are met: (1) the percentage of persons in minority populations in the community exceeds the average for the tri-county area, which is 77.4 percent; or (2) the minority population exceeds 50 percent, indicating that in that community, minorities constitute a majority potentially affected population.

As shown in Table 3-13, the cities of Tularosa, Las Cruces, El Paso, and the Mescalero Apache Indian Reservation exceed 50 percent minority threshold and the communities of El Paso and the Apache Indian Reservation also exceed the 77.4 percent minority threshold.

The 1999 poverty rates for individuals were used to evaluate low-income populations. This rate was 19.3 percent in Otero County, 25.4 percent in Doña Ana County, and 23.8 percent in El Paso County, translating into an unweighted average tri-county poverty rate of 22.8 percent. This compares to a poverty rate among individuals of 18.4 percent in New Mexico, 15.4 percent in Texas, and 12.4 percent in the United States. However, as shown in Table 3-13, only the communities of the Mescalero Apache Indian Reservation (at 35.7 percent) and Las Cruces (at 23.3 percent) had poverty rates that were greater than those of the tri-county region.

3.21.3.5 Housing

Housing units in Otero, Doña Ana, and El Paso Counties have been on the increase since 1990 at rates in excess of the State and National averages. According to the 1990 and 2000 censuses, Doña Ana County has the fastest growing housing stock showing an increase of 32.7 percent over 10 years. While home ownership rates are similar to State and National averages, the rental and homeowner vacancy rates are several points higher than the State and National averages. Otero County has a notably high percentage of vacant housing units, which can be attributed to the comparatively high number of housing units that are for seasonal, recreational, or occasional use (U.S. Census Bureau 1990, 2000a).

TABLE 3-13
MINORITY AND LOW-INCOME POPULATIONS

Community	Total Minority[1]	Minority Population		Total Low Income[2]	Low-Income Population >22.8 Percent
		>50 Percent	>77.4 Percent		
Alamogordo	42.2%	no	no	16.5%	no
Cloudcroft	18.2%	no	no	9.9%	no
Tularosa	61.2%	yes	no	21.4%	no
La Luz CDP	35.2%	no	no	13.8%	no
Timberon CDP	14.6%	no	no	9.5%	no
Mescalero Apache Indian Reservation	96.7%	yes	yes	35.7%	yes
Las Cruces	58.0%		no	23.3%	yes
El Paso	81.7%	yes	yes	22.2%	no

SOURCE: U.S. Census Bureau 2000a

NOTES: 1. The total minority population includes all non-Whites, including all races and individuals of Hispanic/Latino origin. Individuals falling within more than one of these categories are only counted once.

2. The percent total low-income represents the total percent of individuals below the poverty line among the population for whom poverty status was determined from the 2000 Census.

Owner-occupied housing units make up the bulk of all housing within the region of influence. The highest owner-occupancy rates are in Doña Ana County (67.5 percent), followed by Otero County (66.9 percent), and El Paso County (63.6 percent). A total of 26,367 vacant housing units (including seasonal, recreational, or occasional use units) exist among the three counties. Vacancy rates are highest in Otero County (16.4 percent for rentals and 3.5 for homeowners), followed by Doña Ana County (10.3 for rentals and 1.8 percent for homeowners), and El Paso County (7.8 percent for rentals and 1.5 percent for homeowners) (U.S. Census Bureau 1990, 2000a).

3.21.4 Public Infrastructure and Services

3.21.4.1 Public Schools

Within Otero County, public schools are located in the Cities of Alamogordo, Cloudcroft, and Tularosa. Post-secondary education is available at the New Mexico State University Alamogordo Campus, where the Spring 2002 enrollment was 1,751 students. Thirty-three percent of Otero County residents are high school graduates, an additional 33.6 percent have completed some college, and an additional 15 percent are college graduates (Otero County Economic Development Council 2002).

Within Doña Ana County, there are three school districts, Las Cruces School District, Hatch Valley District, and Gadsden Independent School District. New Mexico State University, based in Las Cruces, is the State's land-grant institution, with more than 23,485 graduate and undergraduate students on the main campus (New Mexico State University 2002). Additionally, Doña Ana Branch Community College is the Doña Ana County Occupational Education Branch of New Mexico State University.

Three main school districts serve El Paso County: El Paso Independent School District, Ysleta Independent School District, and Socorro Independent School District. Major institutions for higher education are the University of Texas at El Paso, which issued 1,740 undergraduate, 442 graduate, and 18 doctorate degrees from fall 1998 to summer 1999; and El Paso Community College, which has a total enrollment of 19,845 students for credit courses and 8,200 students in noncredit courses (Greater El Paso Chamber of Commerce 2002).

3.21.4.2 City Police Departments

In Otero County, the Alamogordo Department of Public Safety provides fire and law enforcement protection services. The department employs 68 full-time police officers and 15 full-time firefighters and both professions are cross-trained in the other. Both cities of Tularosa and Cloudcroft have police departments, with eight and three full-time police officers, respectively. The Otero County Sheriffs Department employs 26 sheriffs and deputies. In addition, there are 11 New Mexico State Police and 53 Border Patrol agents assigned to Otero County (Otero County Economic Development Council 2002). The Fort Bliss Law Enforcement Battalion, comprised of 350 sworn officers and 15 other personnel, has law enforcement responsibility for the entire extent McGregor Range (U.S. Army 2000).

Doña Ana County has 563 employees, with 105 officers employed in the Sheriff's Department. The City of Las Cruces Police Department employs 149 officers. New Mexico State Police maintains a regional office in Las Cruces and serves the entire county (Greater Las Cruces Chamber of Commerce 2002).

The El Paso County Sheriffs Office has 243 authorized peace officers and 585 detention officers (Navaro 2002). The City of El Paso Police Department has more than 1,100 commissioned officers and more than 240 civilian support personnel (City of El Paso 2002).

3.21.4.3 Fire Protection

The Fort Bliss Fire Department in El Paso County is responsible for all cantonment areas and within 5 miles of the Main Post and the training Areas. The U.S. Army is responsible for fires caused by military operations on the remainder of Fort Bliss (U.S. Army 2000a).

In Doña Ana County, the county's volunteer fire department employs 16 staff personnel and is further supported by 350 volunteer firefighters. The city of Las Cruces Fire Department employs 106 firefighters (Greater Las Cruces Chamber of Commerce 2002).

The El Paso Fire Department employs 679 structural firefighters, 132.5 fire medical division personnel, and approximately 75 civilians (support personnel). The El Paso Fire Department also provides mutual aid response to Fort Bliss Military Installation and outside the city limits to the County of El Paso (City of El Paso 2002).

3.21.4.4 Medical Facilities

The primary health care provider in Otero County is the Gerald Champion Memorial Hospital, a 95-bed facility in the city of Alamogordo. This $32 million facility was built in 1999 and includes a 15-bed emergency room plus four trauma beds, a helipad, and outpatient facilities. In addition, there are nine dentists with offices in Alamogordo (Otero County Economic Development Council 2002).

There are two major medical centers located in Las Cruces. Memorial Medical Center has 286 beds an ambulatory care center, and maternal/infant care unit and provides most medical/surgical services (Greater Las Cruces Chamber of Commerce 2002). The Mountain View Regional Medical Center, which opened in August 2002, has 112 certified beds; a birthing center and Level 2 nursery; comprehensive cardiology, surgical, intensive care, and diagnostic services; and a full emergency room (Mountain View Regional Medical Center 2003). Additionally, five clinics and the 86-bed Mesilla Valley Hospital provide adult, child and adolescent psychiatric and chemical dependency services (Greater Las Cruces Chamber of Commerce 2002).

El Paso is the health care center for much of west Texas, southern New Mexico, and northern Chihuahua, Mexico. The city's health care facilities include five private hospitals, one public hospital (R.E. Thomason General Hospital), and the Army Medical Center, William Beaumont Army Medical Center. R. E. Thomason General Hospital is the largest public hospital located directly on the U.S./Mexico border and provides 327 beds. The William Beaumont Army Medical Center provides an additional 479 beds for the area. El Paso public health service programs are managed by the State-directed City-County Health Department (Greater El Paso Chamber of Commerce 2002).

3.21.5 McGregor Range-Based Social and Economic Values

Activities having social and/or economic value on McGregor Range include military use and the use of mineral, energy, recreational, and livestock grazing resources. As stated previously, military activities are not addressed here, as the RMPA will not affect military use of McGregor Range. Military social and economic impacts were addressed in detail in the Land Withdrawal Renewal Legislative Environmental Impact Statement (U.S. Army 1999a).

3.21.5.1 Mineral and Energy Resources

Mineral and energy resources on McGregor Range are discussed in detail in Section 3.6. Although several areas on McGregor Range have been identified as having some potential for locatable minerals, at most locations the potential is low (U.S. Army 1998g). Currently, there is no economic activity related to these mineral resources on McGregor Range.

Salable minerals and materials in the form of industrial rocks and minerals occur widely on McGregor Range; however, commodities with some potential for development are limited to sand and gravel, limestone, caliche, and gypsum. The economics of mining these materials depends largely on the costs of transportation. These materials are also available in neighboring basins and mountains in closer proximity to markets for their use (U.S. Army 1998g).

Potential leasable energy resources at McGregor Range include geothermal resources, oil and gas resources, and uranium resources. The U.S. Army is investigating the potential of a geothermal area at the south end of McGregor Range. If oil and gas resources exist on McGregor Range, they are likely to be small (less than 10 million barrels of recoverable oil or 60 billion cubic feet of recoverable gas). Uranium deposits are not known to exist on McGregor Range. The potential to develop commercial quantities of uranium at these sites, or elsewhere in the region is low, considering that highly favorable areas exist elsewhere in New Mexico.

3.21.5.2 Recreational Resources

The recreational resources of McGregor Range are addressed in detail in Section 3.18. McGregor Range has recreational interest and value because of (1) its relatively remote and isolated quality; (2) the special scenic and habitat features in its desert, grassland, and foothills vegetative regimes; (3) the opportunities it provides for hunting; and (4) its wilderness value. Economic activity associated with recreational use is minimal and includes the purchases of services and sundries in nearby communities. The tourism/recreation economies of the study area communities are much more closely correlated with recreation opportunities in other areas surrounding the McGregor Range (e.g., White Sands National Monument, Lincoln National Forest) than they are within McGregor Range.

3.21.5.3 Livestock Grazing Resources

Livestock grazing resources are discussed in detail in Section 3.13. There are 14 grazing units on McGregor Range, totaling 271,000 acres, within the Co-Use Area, which currently support 1,175 head of cattle (2000/2001). These grazing units are managed per an auction system established by the BLM in 1966 for grazing units on withdrawn and U.S. Army fee-owned lands. This system is unlike the priority system that prevails for most public land under the Taylor Grazing Act. Grazing units continue to be offered for public auction to the highest bidder every year. The September 2000 McGregor Range Bid resulted in six units totaling 16,216 AUMs and a total bid of $333,445.30. Of this, $116,422.83 was for 18-month contracts where full payment is not due until the following fiscal year (BLM 2001e). Most grazing contracts run for 9 months, from October through June of the following year. Sometimes a contract will run for 18 months or up to 42 months, depending on rangeland conditions, allowing a season of summer grazing. On multiple-year contracts, BLM collects 10 percent of the total as an initial down payment and then the balance is spread out as yearly payments.

A study conducted by New Mexico State University on competitive pricing for McGregor Range indicates that nonfee costs (such as maintenance, improvements, water, lost animals, etc.) were historically less for ranchers on McGregor Range, because some of these services are provided by the BLM (e.g., water) (U.S. Army 1998g). However, recently auctioned AUMs have been valued from about $10.00 up to $30.10, compared to the standard AUM fee of

$1.43. Fluctuations in bid prices over time indicate that the value of AUMs (lease rates) on McGregor Range varies in an open market. External conditions, particularly low rainfall, have been correlated to dramatic increases in what ranchers have been willing to pay for good grazing conditions.

Money collected from grazing fees on McGregor Range continues to go into a fund to directly pay for the costs of running the program. Eight of 15 units were offered for bid in 2000-2001, with a total bid value of $493,633.60 (BLM 2001e). These grazing units, grazed by seven different entities, have a total cumulative assessed value of $477,752 and taxable value of $159,251 (33 percent of the total value). A 9-month lease for Unit 13 had the highest assessed value at $75,600 (Otero County Office of the County Assessor 2001).

Grazing units on McGregor Range are valuable due to extensive range improvements, high quality forage, services provided to ranchers by BLM, and availability and delivery of U.S. Army-owned water through an extensive pipeline system that was constructed and maintained by ranchers over several generations and is now maintained by the BLM. There are about $4.6 million of improvements in the form of water pipelines, holding tanks and troughs, corrals, wells, fences, and windmills. Fort Bliss has annual rights to about 110,000 gallons per day of water from the Sacramento River and Carrisa Springs that is used for preservation of fish and wildlife. Currently, both wildlife and cattle benefit from this water, delivered via pipeline to watering tanks on McGregor Range (U.S. Army 1998g).

Under the bid/auction system, grazing units do not necessarily stay with the same rancher, as they do with most BLM grazing allotments. The U.S. Army (1998g) reports that over a 5-year period, most units had two or three different grazing contractors, and three units had up to four different grazing contractors. Two units (Units 4 and 5) were used under contract by the same rancher, and these units were only available for 2 years, while one unit was held by the same rancher for 4 years. Also, because BLM provides water and maintenance services that are not usually included in grazing contracts, grazing units on McGregor Range are operable for out-of-state ranchers as well as local ranchers. The same study found that more than 50 percent of the contracts were with ranchers in New Mexico, about 25 percent with ranchers from Texas, about 17 percent from Arizona, and the remainder from Colorado and California (U.S. Army 1998g). During 1999-2000 grazing period, four grazing units were held by out-of-state grazing contractors (all with listed addresses in Texas) and the remainder were held by in-state grazing contractors (Otero County Office of the County Assessor 2001).

Livestock grazing is a widespread use of public and private land throughout the region. The suitability of areas for this use is linked to soil type, vegetation, management practices, water availability and range improvements that provide water to livestock. Recent drought conditions throughout the Southwest have increased the demand for improved pasture by both local and out-of-state ranchers. Pasturage on McGregor Range, with its good infrastructure, has been rising in value dramatically and steadily since the mid-1990s. In addition to existing water improvements, factors which may be contributing to the increasing value of McGregor Range grazing lands relative to other rangelands are the relative lack of interference from other activities (such as recreational use) and adequacy of funding (derived directly from contract revenues) to support range management and maintenance operations.

3.21.6 Social Attitudes and Values

The prevalent social attitudes and values for the McGregor Range, as expressed during the public scoping period for this RMPA/EIS, were varied. Three major categories of issues related to social and economic values were identified: (1) the potential for oil and gas leasing, (2) attitudes and values relative to custom and culture, and (3) resource preservation.

Concerns related to the potential for oil and gas leasing within McGregor Range were the most plentiful and also the most varied. The level of interest and concern surrounding this issue is likely attributable, at least in part, to the determination that a recently drilled well east of McGregor Range is sufficient to serve as a commercial gas well. This indicates that commercially viable gas resources may exist in some areas of the McGregor Range. This discovery east of McGregor Range has prompted oil companies to express interest to the BLM to address future development of utility corridors (U.S. Army 1999a). During scoping, there were requests for clarification on whether PL 106-65 provides for oil and gas leasing, exploration, and development. There were some who stated that the RMPA should include an alternative that would provide for no oil and gas leasing, while others stated that oil and gas exploration and development should be permitted on McGregor Range. Some stated that oil and gas leases should be analyzed fully, not just from a programmatic standpoint, before a lease is granted. There was also the concern that the beneficial economic impact from oil and gas exploration should be addressed in the RMPA.

The second category, regarding the importance of considering custom and culture in the RMPA and EIS, was comparatively straightforward. Issues that fall into this general consideration include the social value of McGregor Range in terms of recreation, hunting, grazing lands and ranching lifestyle, military presence and the value of the military in the local community, and adequate access to archaeological sites present on the range. The attitudes for each of the identified issues were expressed in terms of the values that individuals have for these current, continued, and/or future opportunities for these activities on McGregor Range.

Lastly, concerns were expressed about the impacts on and preservation of resources. The prevalent attitude was for the protection of resources and included issues such as cultural resources, water availability and use, grasslands and grazing, spread and introduction of noxious weeds, grasslands, wildlife and wildlife habitat, habitat fragmentation, special status species, rangeland, and cultural resources.

3.22 UNEXPLODED ORDNANCE

There is no general public access to TAs 24 through 32 because of the dangers inherent with UXO (refer to Map 3-2). An ordnance and explosive (OE) investigation was conducted on McGregor Range to estimate the number of OE items present on McGregor Range and assess what portion of those are on the ground surface as opposed to being buried. The 1999 McGregor Range, New Mexico Land Withdrawal Renewal OE Characterization and Cost Analysis presented the results of the OE investigation and the results of a risk analysis, which used the results of the OE investigation to estimate exposure risks. For the purposes of the OE investigation, McGregor Range was split into two regions. Region 1 was defined as the area where no public access is currently allowed and included the area south of New Mexico Highway 506, not including the Otero Mesa (includes land mainly within the Tularosa Basin). Region 2 was defined as the portion of McGregor Range that is currently accessible to the public, and included the Otero Mesa, foothills of the Sacramento Mountains, and a small portion of the Tularosa Basin (north of New Mexico Highway 506). Region 1 was further split into three zones: the north zone, central zone, and south zone; and Region 2 was split into 53 sectors. OE items, most of which were UXO, were found in six of the 53 sectors in Region 2 and all three of the zones of Region 1. No OE was found in the remaining 47 sectors of Region 2, but scrap from munitions or targets were found in 45 of these 47 sectors.

The OE Cost-Effectiveness Risk Tool (OECert) was used to assess the risk to the public due to OE at McGregor Range. The OECert system was developed to assess the risk to the public due to ordnance at formerly used military training and defense sites. OECert was used on McGregor Range only to assess risk in Region 2, since this is the area currently accessible to the public, and was used to evaluate the potential number of UXO exposures to members of the public. A UXO exposure, as defined by the OECert methodology, is based on the proximity of an individual to UXO. The individual does not have to specifically touch or know the item is present for an exposure to occur.

OECert found that the total expected annual surface and subsurface exposures in all 53 sectors of Region 2 for current land use is 20,886, and for future land use it is 69,839. The estimated number of detonations from surface UXO over a period of 20 years was calculated to be 0.476 for current land use and 0.545 for future land use, assuming no UXO removal action. This means that less than one accidental detonation would be expected to occur within a 20-year period under current conditions, assuming no UXO removal. This statistical measure can be approximated for time intervals other than 20 years. For example, 0.476 expected injuries/deaths in 20 years also can be stated as one expected injury or death in 42 years. The chance of an injury or death caused by a motor vehicle accident is one occurrence in 65 exposures. In a UXO-related accident, the chance is 1 in 1.2 million for current land use and 1.1 million for future land use. In more common terms, a person is 18,000 times more likely to be injured or die in a car accident than in a UXO-related accident at McGregor Range (U.S. Army 1999a). However, according to Fort Bliss, several times in the last 10 years, fire fighters have witnessed UXO detonating as fires swept through the area (Locke 2003).

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4.0

Environmental Consequences

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This chapter describes the predicted consequences, or potential effects, on the environment of implementing the alternatives described in Chapter 2. The chapter begins with a summary of the methods used for the impact assessment, describes the impacts that are common to all alternatives, and summarizes the potential impacts that could result from each alternative.

Using the information describing the existing condition of the environment (Chapter 3) and a description of the activities that may occur in the reasonably foreseeable future within the Planning Area, the types of impacts that could result from implementing the alternative plans were identified. The inherent difficulty of a broad environmental impact statement such as this is to describe potential impacts from a project action when exact locations of project sites are not known.

Impacts are defined as modifications to the environment, as it presently exists, that are brought about by an outside action. Impacts can be beneficial (positive) or adverse (negative), and result from the action directly or indirectly. Impacts can be permanent, long-lasting (long-term), or temporary (short-term). In the case of this analysis, long-term impacts are defined as those that substantially would remain for the life of the planning period and beyond (approximately 20 or more years). Short-term impacts are defined as those changes to the environment during ground-disturbing activities that generally would revert to predisturbance conditions at or within a few years of the end of ground disturbance. Short-term impacts may range from 1 to 3 years in duration. Impacts can vary in significance from no change, or only discernible change, to a full modification or elimination of the environmental condition.

4.1.1 Impact Types

The analysis includes three types of effects (see 40 Code of Federal Regulations [CFR] 1508.7 and 1508.8) as described below. *Direct effects* are caused by the proposed action and occur at the same time and place. *Indirect effects* are caused by the proposed action and are later in time or farther in distance, but are still reasonably foreseeable. *Cumulative effects* result from incremental impacts of the proposed actions when added to other past, present, and reasonably foreseeable future actions regardless of what person(s) or agency (Federal or non-Federal) undertakes those actions. Reasonably foreseeable future actions consist of projects, actions, or developments that can be projected, with a reasonable degree of confidence, to occur within a defined time frame and that will impact the same, or portions of the same, resource. This Resource Management Plan Amendment/Environmental Impact Statement (RMPA/EIS) reflects a broad, integrated land use planning analysis for a large geographic area that will result in prescription of general standards and controls, and procedures for subsequent implementation of future projects. Therefore, major past, present, and future actions and their relation to potential activities on McGregor Range are addressed generally.

The analysis of unavoidable adverse impacts, short-term versus long-term productivity, and irreversible and irretrievable impacts is incorporated into the discussions in Sections 4.2 and 4.3. If they are not discussed specifically, there are none.

In order to determine the vulnerability of resources to impacts, resources were evaluated in terms of the following general criteria:

- Resource significance—a measure of formal concern for a resource through legal protection or by designation of special status
- Resource sensitivity—the probable response of a particular resource to project-related activities
- Resource quality—a measure of rarity, intrinsic worth, or distinctiveness, including the local value and importance of a resource

- Resource quantity—a measure of resource abundance and the amount of the resource potentially affected

4.1.2 Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions (RFFAs) are projections of the actions and activities that are likely to occur in the Planning Area over the life of the planning period, which in this case is 15 to 20 years. The RFFAs described for each of the applicable resources and uses were developed considering no action and the action alternatives described in Chapter 2 such as watershed management and actions routinely conducted by Bureau of Land Management (BLM).

The following discussion estimates surface-disturbing activities per year to the extent that the actions can be described on a yearly basis. Actions that cannot be described on a yearly basis, either because they are implemented as needed or would not recur over the 20-year planning period, also are discussed.

4.1.2.1 Range Improvements

- Up to two new corrals would be constructed over the next 20 years. Total estimated ground disturbance would be 1 acre.
- Up to 10 water troughs would be constructed over the next 20 years. Total estimated ground disturbance would be 5 acres.
- Up to eight wells would be constructed over the next 20 years. Total estimated ground disturbance would be 0.5 acres.
- Up to 10 water storage tanks would be constructed over the next 20 years. Total estimated ground disturbance would be 0.5 acre.
- Up to 20 miles of fence would be constructed over the next 20 years, averaging 1 mile per year and 0.05 acre of disturbance per mile. Total ground disturbance over the next 20 years would be 1 acre. Overland vehicular traffic also may occur along the fence line while repairs are conducted.
- Up to 20 miles of water pipeline would be constructed over the next 20 years, averaging 1 mile per year and 0.5 acre of disturbance per mile. Total ground disturbance over the next 20 years would be 10 acres. Overland vehicular or equipment traffic would occur along the pipeline while construction is occurring.
- Road maintenance activities on up to 30 miles of road are anticipated per year, with an estimated disturbance of 44 acres per year. Disturbance primarily would be limited to grading the existing roadbed (no new roadbed material would be used in most cases).
- Up to 40 erosion-control structures, such as gabions and brush gully plugs, would be installed in the priority watershed areas identified under Alternatives B and D. Each would disturb approximately 0.1 acre with a total surface disturbance of 4 acres.

4.1.2.2 Wildfire

Wildfires are projected to occur every other year, with an estimated 2,000 acres burned per wildfire. Total acreage to be burned by wildfires over the next 20 years is estimated at 20,000 acres.

4.1.2.3 Mineral Material Extraction

It is estimated that one action would occur every other year, disturbing 0.5 acre per action. Total ground disturbance over the next 20 years would be 5 acres. As required by Public Law 106-65, extraction of salable minerals is closed to the general public. As described in Chapter 2, extraction of salable minerals by the U.S. Department of the Army (U.S. Army) for construction needs on McGregor Range would be allowed. For State and county roads on McGregor Range, BLM would consider applications from State or county entities, or their contractors, to extract mineral minerals from McGregor Range for use on these State and county roads.

4.1.2.4 Fuels Reduction and Woodland Management

The following actions were identified in the 2003 Environmental Assessment for Timberon

Hazard Fuels Reduction and Woodland Management prepared by BLM in coordination with Fort Bliss and the U.S. Forest Service (Forest Service) (BLM 2003b). A map showing areas identified for fuels reduction and woodland management can be found in Appendix E.

- Hazard fuel reduction in and around the community of Timberon on lands administered by the BLM, Forest Service, and U.S. Army:
  - Approximately 60 percent of the tree cover is planned for removal on an area covering 300 to 600 feet in width for a distance of approximately 7 miles. Of the 332 acres planned for treatment, 218 acres have been treated to date. The remaining 114 acres would receive treatment over the next 2 to 3 years.
  - The vegetative material removed to create the fuel break would be placed in piles and burned over the next 2 to 3 years.
  - The fuel break would be maintained through periodic use of prescribed fire.
- Meadow Restoration
  - Meadow restoration is planned over the next 5 years. Woody vegetation, which has invaded former grassland swales and valleys, would be removed from ten areas covering approximately 503 acres.
  - The vegetative material removed for meadow restoration would be placed in piles and burned.
  - Meadow areas would be maintained through grazing rotation and prescribed fire.
- Tree Thinning
  - Tree thinning is planned over the next 5 years for three areas covering approximately 310 acres to improve forest health and wildlife habitat.
  - The vegetative material removed during tree thinning would be placed in piles and burned.
- Prescribed Fire
  - Prescribed fire is planned for approximately 9,100 acres over an 8-year period.
  - Prescribed fire would be concentrated on areas with Fuel Model 1 (grasslands), Fuel Model 8 (closed timber litter), and Fuel Model 2 (woodland with grass under-story) to reduce tree density in areas that support grass cover and to create a mosaic of fuel loading.
- Wildlife Clearings
  - Within 266 acres identified for wildlife clearings, approximately 50 acres would be cleared to create openings in dense piñon juniper stands to serve as foraging areas for wildlife. Ten wildlife clearings would occupy approximately 20 percent of the 266 acres identified (approximately 50 acres).
  - The wildlife clearings, anticipated to be created within the next 8 years, would be less than 5 acres in size, and no closer than 300 feet from a meadow or other wildlife clearing.
- Erosion-Control Measures
  - Erosion control measures would be implemented over the next 10 years in six different areas covering approximately 3,814 acres. This action is separate from any activities resulting from development of a watershed management plan associated with Alternatives A and D.
  - Corrective actions include road maintenance and relocation, road closures, revegetation, livestock exclosures, and installation of erosion control structures such as gabions and brush gully plugs.

4.1.3 Mitigation Planning

Mitigation is the abatement or reduction of an impact on the environment by (1) avoiding a certain action or parts of an action, (2) employing certain measures to limit the degree of impact, (3) restoring an area to predisturbance conditions, (4) preserving or maintaining an area throughout the life of a project, (5) replacing or providing substitute resources to the environment, or (6) gathering certain data (e.g., archaeological, paleontological) prior to disturbance.

Measures to mitigate projected adverse effects of alternatives should be determined at the time a specific action is proposed. In addition, BLM has developed a suite of best management practices (BMPs), which are measures or activities that are added to typical operation, construction, or maintenance efforts to help protect environmental resources. These practices are designed to minimize surface disturbance and effects on resources, and retain the reclamation potential of the disturbed area. They represent effective and practical means of accomplishing the management goals and objectives of the BLM and should be used as a guide when preparing plans and details that are specific to individual projects (Appendix F).

4.2 IMPACTS ANALYSIS

The following section provides descriptions of the potential impacts that could result from activities associated with continuing existing management (No-Action Alternative) or implementation of one of the alternatives to existing management (Alternatives A, B, or C).

The management strategies associated with each alternative were developed considering issues identified during scoping or management concerns identified by the BLM interdisciplinary team. Table 2-2, Plan Alternatives, and Table 2-3, General Management Guidance, list the resource concerns and management strategies associated with each resource. This section is organized by resource and begins with an overview of the issues or concerns associated with the resource. The overview is followed by a description of the objectives identified for future management of each resource or use. A description of the assumptions used in assessing potential impacts precedes the description of the potential impacts that could result from each alternative. The last subsection for each resource is a discussion of any mitigation measures that may be warranted.

4.2.1 Lands and Realty

4.2.1.1 Resource Concerns

The need to address and evaluate corridors for existing and future linear facilities was noted during scoping. Also, BLM guidance directs field offices to designate corridors on public land to accommodate existing as well as new linear rights-of-way, consistent with the goals, standards, and objectives within the Planning Area, for interstate and intrastate energy distribution and energy-producing facilities necessary to meet current and projected (10 to 15 year) demand. In addition, BLM is required to identify exclusion and avoidance areas for rights-of-way; that is, areas that are determined unsuitable for rights-of-way because significant constraints to siting facilities exist (exclusion) and areas determined to be less suitable because of constraints but where mitigation measures could be employed to reduce potential adverse effects (avoidance).

4.2.1.2 Objectives

The objective of the lands and realty program is to consider those uses that are compatible with the McGregor Range withdrawal (Public Law (PL) 106-65) and, if compatible, make selected withdrawn land and its resources available for the public to meet National, regional, and local needs while maximizing public land health.

4.2.1.3 Assumptions

At this time, there are no plans by El Paso Electric or the Western Utility Group to construct additional utilities across McGregor Range (URS Corporation 2003). Rapid community growth that would increase demand for various types of additional, nonmilitary land use authorizations (i.e., leases, permits, and easements) is not expected in the region. Therefore, although future applications for rights-of-way on McGregor Range are anticipated, the rate of demand for rights-of-way in the Planning Area is not expected to increase substantively.

Under all alternatives, applications for leases, permits, or easements for nonmilitary uses of McGregor Range would continue to be analyzed on a case-by-case basis. These include grazing leases, mineral and energy leases (although the withdrawn public land is expected to remain closed to exploration and development), and access permits. In addition, general terms and conditions on rights-of-way per 43 CFR 2801 and on leases, permits, and easements per 43 CFR 2920.7 would apply.

The key considerations in determining impacts are the BLM's ability to permit rights-of-way and other land use authorizations; and suitability of land for rights-of-way available to meet anticipated demand.

4.2.1.4 Impacts Common to All Alternatives

Under all alternatives:

- The provisions of PL 106-65 would be unchanged. Thus, disposal of withdrawn land through sale, the Recreation and Public Purposes Act, or exchange would not be permitted. Potential effects of BLM lands and realty actions (i.e., issuing a lease, easement, right-of-way, or other authorization for nonmilitary use of McGregor range) on the military mission would be addressed on a site-specific basis through coordination with Fort Bliss and the concurrence of the Secretary of the Army.
- No impacts on existing, valid rights-of-way would occur.
- Individual right-of-way grants and land use authorizations may adversely impact surface water flow, visual resources, vegetation, or other resources on specific sites. However, potential impacts may be mitigated through site-specific analysis that would accompany each proposed action and implementation of BMPs.

4.2.1.5 Alternatives

4.2.1.5.1 No-Action Alternative

Under continuing existing management, BLM would continue to grant nonmilitary rights-of-way on a case-by-case basis, after additional analysis and concurrence from the Secretary of the Army. Areas that may be more sensitive to construction of facilities—such as Wilderness Study Areas (WSAs), Areas of Critical Environmental Concern (ACECs), Visual Resource Management (VRM) Class II areas, cultural resources, or aplomado falcon habitat—would not be afforded any specific protection by virtue of the land use plan, but would be expected to receive consideration through the typical application process. Interference with the military mission would be avoided through the concurrence process, but without the establishment of avoidance or exclusion areas, there may be a lesser degree of streamlining or standardization in the concurrence process.

4.2.1.5.2 Alternative A

Alternative A would establish 171,948 acres as unsuitable for rights-of-way (exclusion areas). Exclusion areas offer specific protection to selected military training areas as identified by Fort Bliss, WSAs, and ACECs. The protection provided to these areas addresses safety considerations and the unique values managed within each special management designation.

Under this alternative, the establishment of one north-south and one east-west utility corridor would consolidate the locations of new linear facilities. The proposed corridors are adjacent to existing linear facilities including major roads and electric transmission lines, reducing additional impacts on resources by using previously disturbed areas. Consolidation of future linear facilities would minimize the proliferation of facility sites , likely resulting in fewer visual and other resource impacts overall. In addition, the establishment of utility corridors supports a streamlined permitting process by reducing the scope of analysis required during the application process. Concurrence from the Secretary of the Army would be required for right-of-way grants—to ensure compatibility with the military mission and consideration of additional safety precautions related to the military mission.

Though exclusion areas would reduce the area available for rights-of-way for linear and site-specific facilities, the remaining available lands and the two utility corridors would be expected to provide adequate capacity and flexibility for the anticipated volume of right-of-way applications. The one-mile-wide utility corridors would provide sufficient space for various linear facilities, with adequate distance between multiple rights-of-way within the corridor, while avoiding conflicts with adjacent or nearby uses.

4.2.1.5.3 Alternative B

Potential impacts associated with this alternative are the same as the No-Action Alternative, except that Alternative B provides for three utility corridors. Utility corridors would minimize impacts associated with the proliferation of multiple linear facilities within the Planning Area and would provide adequate capacity for projected right-of-way needs. Flexibility to site facilities outside established corridors would be greater than under Alternative A due to the lack of exclusion areas; however, similar to the No-Action Alternative, protections for unique resources and safety considerations are not formalized.

4.2.1.5.4 Alternative C

Alternative C proposes 172,208 acres as exclusion areas to rights-of-way, and the remainder as avoidance areas. Impacts associated with the exclusion areas would be similar to those described for Alternative A. Avoidance areas under Alternative C would encompass 434,023 acres. The avoidance areas in Alternative C would reduce the flexibility of the BLM to permit land use authorizations throughout McGregor Range, but provide additional protection to VRM Class II areas, cultural resources, and aplomado falcon habitat by requiring specific consideration and possibly mitigation measures.

No utility corridors would be designated under Alternative C, and no additional rights-of-way for nonmilitary utilities would be permitted. This reduces the BLM's ability to grant rights-of-way, and does not comply with current BLM guidance and National Energy Policy.

4.2.2 Transportation and Access

4.2.2.1 Resource Concerns

Access to public land was an important issue identified during scoping. Specific concerns included suggestions to designate routes as open, limited, or closed to public access; eliminate duplicative routes and minimize route proliferation; and address the general connection among road construction, access, and resource disturbance. The BLM interdisciplinary team also raised management concerns about safety issues related to unexploded ordnance and military activities generally, and public education on access and safety issues. In response to these concerns, planning for the route designation process and public education are included throughout the alternatives.

4.2.2.2 Objectives

The objective of this RMPA for transportation and access on McGregor Range is to provide guidance to all users of the withdrawn public land regarding allowable uses and information about how those uses will be managed, and clarify the areas available for use and the procedures that will be followed to access McGregor Range.

4.2.2.3 Assumptions

All action alternatives include the development of an access plan that would designate routes as open, closed, or limited. Although it is not clear what proportion of routes would be designated as open through this future planning process, action alternatives are compared based on the general criteria for route designation. For the impact analysis, the key consideration is the degree to which access to Federal land is limited to the public. Under all alternatives, access permits would be coordinated with Fort Bliss to (1) ensure compatibility with the military mission and (2) to ensure that necessary safety precautions are communicated to nonmilitary users of McGregor Range.

In addition to individual route designations, areas may also be identified as closed, open, or limited to existing or designated roads and trails for off-highway vehicle (OHV) use. Although OHV use is addressed as a recreation use (see Section 4.2.14), the OHV-use-area designations are directly related to access to and within McGregor Range, and are discussed in this section as well. The access management plan included under the action alternatives would consider OHV and other recreation uses, and would lead to individual route designations of open, limited, or closed. The future plan could then designate appropriate routes within OHV limited areas that would affect OHV use and designate appropriate routes for other travel within closed OHV areas.

4.2.2.4 Impacts Common to All Alternatives

Access is necessarily limited by the priority given to the military mission and associated safety precautions. Under all alternatives, secondary and not-necessarily-authorized route proliferation could occur if changes are not implemented to enforce restrictions on driving off of the designated route network.

4.2.2.5 Alternatives

4.2.2.5.1 No-Action Alternative

Under continuing existing management, access for recreation would continue to occur by permit. But this alternative does not include an overall evaluation of existing routes or a plan for addressing access that would lead to open, limited, or closed route designations. As a result, transportation and access policy under the No Action Alternative may not be consistent with or reflective of current resource conditions.

OHV use is regulated on McGregor Range under the No-Action Alternative. It is limited on 608,345 acres, and the Escondida Site (40 acres) is closed to OHV use. While restrictive to some recreationists, these constraints promote public safety, resource protection, and allow for continued military operations on McGregor Range.

4.2.2.5.2 Alternative A

Under Alternative A, the existing roads inventory would be refined and a transportation and access plan developed to designate roads as open, limited, or closed. Route designations would be based on a balance of OHV access, recreation, natural resource protection, and public safety. It is not clear what proportion of existing routes would be designated as open, limited, or closed in the future plan. However, given the identified redundancy and proliferation of routes, it is likely that access to some roads would be limited or eliminated (closed) under this alternative. Under general management guidance, existing roads that are identified as contributing to substantial or accelerated soil erosion would be considered for mitigation or relocation. As with all action alternatives, educational materials would be developed for the public to illustrate designated roads and trails and OHV designations, and explain safety considerations on McGregor Range.

OHV use under this alternative would be limited to existing roads and trails until a transportation and access plan is prepared and roads and trails are designated. Areas closed to OHV use would be expanded to include all ACECs as well as the Escondida Site, or a total of approximately 3,936 acres. Impacts on access associated with the OHV use area designations are generally the same as the No-Action Alternative with slightly less access for OHV users occurring in order to protect ACEC resources.

4.2.2.5.3 Alternative B

Potential impacts associated with this alternative are the same as Alternative A with the exception that the route designation criteria would emphasize maintaining open public access, as practicable, and establishing new roads for authorized uses. Increased access would facilitate recreational opportunities and the development of mineral resources in accordance with the management guidance for those resources. Potential long-term impacts of this alternative include the potential for degradation or loss of natural and cultural resources because of road construction and increased access to terrain is increased. Secondary and not-necessarily-authorized route proliferation also could occur if restrictions on driving off of the designated route network are not enforced.

OHV use areas and associated impacts on access are generally the same as under the No-Action Alternative.

4.2.2.5.4 Alternative C

Potential impacts under this alternative would be the same as Alternative A, except that route designation criteria would emphasize limiting public access to McGregor Range, and closure and rehabilitation of redundant routes. It would be expected that an access plan developed under this alternative would close and/or limit access to more roads than the other action alternatives. Although this alternative is the most protective of natural resources, it could impede achievement of the multiple-use mandate due to the emphasis on restricting public access.

OHV use is most restricted under Alternative C, essentially limiting travel to New Mexico Highway 506 and county roads on McGregor Range. Areas closed to OHV use would be expanded beyond the other alternatives, to include approximately 57,256 acres. Impacts on access would be greatest under Alternative C, as OHV use is essentially prohibited except on key transportation routes.

4.2.3 Mineral and Energy Resources

The evaluation of impacts on geologic resources includes consideration of the effects on mineral resources (salable, leasable, and locatable minerals), oil and gas resources, and geothermal resources as well as renewable (solar and wind) energy resources.

4.2.3.1 Resource Concerns

During scoping, both support and opposition to oil and gas leasing, exploration, and development were voiced. The BLM interdisciplinary team noted that there has been interest in mineral resources exploration and development of McGregor Range and surrounding areas (including oil and gas and geothermal resources). No management concerns specific to wind and solar (renewable) energy were identified during scoping, but the BLM determined that renewable energy resources (solar and wind) should be evaluated for potential development. The regulation of mineral entry under PL 106-65 and other laws limits the scope of alternatives for exploration and development; however, options for renewable energy resources consistent with PL 106-65 are explored throughout the alternatives.

4.2.3.2 Objectives

The objective of the minerals program on withdrawn public land on McGregor Range is to identify areas that are suitable for access to and use of locatable, leasable, and saleable minerals consistent with the laws that govern these activities, while minimizing environmental damage and maximizing public land health. The objective for mineral and energy resources is to continue a management policy that allows for the continued military use of McGregor Range while adhering to regulations to routinely re-evaluate opening portions of McGregor Range for mineral entry based on the mineral (locatable, leasable, or salable minerals) and energy resource potential and economic or public interest. PL 106-65 requires that management decisions for McGregor Range must be compatible with and not impair the military uses for which the Range was withdrawn.

4.2.3.3 Assumptions

Mineral and energy resources are subject to various Federal regulations, as discussed in Section 2.2.2. Federal Land Policy and Management Act (FLPMA) provides for public uses such as mining; however, under PL 106-65, McGregor Range is closed to minerals leasing and entry for mining of locatable minerals. Under all alternatives, it is assumed that McGregor Range likely will remain closed to mineral entry throughout the planning timeframe of 15 to 20 years. However, PL 106-65 requires that, every 5 years, BLM compile expressions of interest and information related to leasable and locatable mineral activities on McGregor Range and review new information to determine whether a plan amendment would be needed.

4.2.3.4 Impacts Common to All Alternatives

The impacts of limited access to mineral resources on the McGregor Range are primarily economic. Locatable mineral resources (metallics and nonmetallics) generally have a low or low-to-moderate potential of occurring on various portions of McGregor Range. Salable (industrial) minerals generally have a low potential of occurrence. Leasable minerals such as oil and gas have a low-to-moderate potential; there is a high potential for geothermal resources on portions of McGregor Range (refer to Section 3.6.2, Mineral and Energy Resources).

Under all alternatives:

- McGregor Range would remain closed to mineral entry in accordance with PL 106-65. It is assumed that any exploration or mineral development work on McGregor Range, if allowed in the future, would include mitigation and BMPs that would meet or exceed regulatory compliance to assure protection of the environment. Impacts would be associated primarily with the loss of economic opportunities (see Section 4.2.17.4). These impacts cannot be quantified; however, the low-to-moderate potential of occurrence of resources and the continuing military mission of Fort Bliss suggest that future mineral development is unlikely to occur as a major economically viable or allowable use in the foreseeable future.
- The RFFA for mineral resources is estimated to include one mineral material extraction action every other year, disturbing 0.5 acre per action. Total ground disturbance over the next 20 years would be 5 acres (see Section 4.1.2 for full discussion of RFFAs). Impacts on mineral and energy resources resulting from RFFA activities are expected to be minimal due to the small amount of acreage affected.
- As required by PL106-65, extraction of salable minerals is closed to the general public. As described in Chapter 2, extraction of salable minerals by the U.S. Army for construction needs on McGregor Range would be allowed. For State and county roads on McGregor Range, BLM would consider applications from State or county entities, or their contractors, to extract minerals from McGregor Range for use on these State and county roads. The amount of material projected to be removed is not expected to be of economic significance and the material is commonly found and of low economic value. It is assumed all materials would be extracted such that any required environmental compliance and BMPs are adhered to so impacts are expected to be minor or insignificant. Potential mitigation for a specific action could include minimizing surface disturbance and ensuring the final slopes of pits conform to BLM standards.
- Development of large-scale renewable (solar or wind) energy projects on McGregor Range seems unlikely in the near future. The economic viability of such projects and the compatibility with military operations would need to be evaluated and approved before any projects were developed. Such projects seem unlikely at this time and as with mineral resources, the renewable energy impacts are primarily based on economics that are difficult to measure without project-specific actions.

4.2.3.5 Alternatives

4.2.3.5.1 No-Action Alternative

McGregor Range would continue to be withdrawn from all forms of appropriation under the public land laws including mining and mineral leasing laws. BLM would review locatable and leasable minerals every 5 years and, if appropriate, publish opening notices, and authorize mining and mineral leasing after U.S. Army concurrence. Impacts would be the same as those discussed as common to all alternatives under Section 4.2.3.4.

4.2.3.5.2 Alternative A

McGregor Range would continue to be closed to entry for mining of locatable minerals (hard rock) and to leasing and development of fluid minerals (oil, gas, geothermal). Every 5 years, BLM would evaluate whether the decision is still appropriate and coordinate with Fort Bliss to determine whether to modify the decision. McGregor Range would continue to be closed to the general public for extraction of salable minerals (sand, gravel, caliche); however, extraction of salable minerals by the U.S. Army for construction needs on McGregor Range would be allowed. For State and county roads on McGregor Range, BLM would consider applications from State or county entities, or their contractors, to extract minerals from McGregor Range for use on these State and county roads.

Applications for development of wind and solar energy-generating facilities would not be considered because of the potential incompatibility with military uses. As noted in Section 4.2.3.4, potential impacts are primarily economic, and cannot be quantified.

Potential impacts (and mitigation and/or BMPs as applicable) associated with this alternative are the same as the No-Action Alternative.

4.2.3.5.3 *Alternative B*

Management decisions would be the same as Alternative A except that applications for development of wind and solar energy resources would be considered if they are consistent with other resource uses. Potential impacts (and mitigation and/or BMPs as applicable) associated with this alternative are the same as the No-Action Alternative. Impacts related to the development of wind and solar energy would need to be evaluated on a project-specific basis, but likely would include surface disturbance associated with facility and access road construction and local economic gains.

4.2.3.5.4 *Alternative C*

Management would be the same as under Alternative A except that applications for the development of wind and solar energy resources would be considered if consistent with other resource uses and would only be allowed in areas other than exclusion areas. Potential impacts (and mitigation and/or BMPs as applicable) associated with this alternative are the same as the No-Action Alternative. Impacts related to the development of wind and solar energy would need to be evaluated on a project-specific basis.

4.2.4 Soils, Water, and Watershed Management

The impacts associated with soils, water, and watershed management are combined in this section because the resources are closely interrelated. Potential impacts on water resources under the alternatives might include changes in water quantity or quality; they have potential to both domestic water supplies (for livestock and other agricultural uses) and wildlife and/or natural vegetation use of water. Both surface and groundwater potentially are impacted by proposed and alternative actions.

Soil resources can be impacted by management decisions, either by changing erosive actions of wind and water or by limiting the productivity of the soil. Soil resources also influence water resources when excessive erosion and sediment transport degrades water quality or habitat.

Finally, watershed impacts are an accumulation of all of these impacts as they limit or enhance the ecology of an entire drainage basin. BLM policy recognizes that many planning decisions need to include consideration of impacts that are minor in any specific place but can damage the land on a watershed basis.

4.2.4.1 Resource Concerns

During scoping, the public did not express any concerns directly related to soil erosion, although related issues such as grazing management were raised. The BLM currently considers wind and water erosion to be the most significant process affecting soils on McGregor Range.

BLM has concerns about water resources on McGregor Range. Concerns developed out of day-to-day management and/or extracted from previously written planning documents include:

- Concerns about stream channel conditions, such as physical impacts to stream channels due to locations of improvements and roads (i.e., compaction, runoff, erosion, etc.), and the potential impacts from new construction.
- Concerns about water quality, specifically three watershed management plans previously identified (in the 1990 RMPA) for development on 86,450 acres due to high erosion rates. These need to be revisited and developed as appropriate, to include follow-up monitoring.
- Concerns about water quantity/supply. The Orogrande municipal water supply pipeline passes through parts of McGregor Range. Maintenance actions planned by BLM should have considerations for limiting impacts on

the pipeline. Where appropriate, measures necessary to ensure availability of water for multiple use will be identified.

In addition, the public raised concerns about water resources at the scoping meetings. Specifically, the comments about water included:

- Address water extraction on McGregor Range
- Concern about water management and use
- Water should be allocated not only for livestock, but also for wildlife
- The unlined sewage lagoon on McGregor Range should be removed and a septic tank system installed; concerned about small area in one corner of the lagoon, which is contaminated with hazardous waste
- Concern about water supply in Orogrande
- Emergency supplies of water should be available for the community of Orogrande for fire suppression, preferably resources in the Tularosa Basin

There are two sewage lagoons on McGregor Range, both associated with Fort Bliss training operations. Both facilities are discussed in the Management Situation Analysis and this EIS in the hazardous materials sections. Issues over the Orogrande water supply pipeline have been addressed by a grant to the community under the U.S. Department of Agriculture (USDA), Rural Utilities Service, which is designed to locate an alternate supply. This action was precipitated, in part, by the current (June 2004) drought and subsequent unreliability of flows at the intake along the Sacramento River near Timberon.

The remaining issues have been addressed through the planning process. During the analysis of the current management and opportunities for future management, the BLM interdisciplinary team identified concerns that focused the input received upon specific management decisions that could be implemented under existing BLM policy and regulations.

4.2.4.2 Objectives

The objective of the soils program is to maintain healthy and productive soils that support and maintain appropriate vegetative cover and maximize public land health. The objective for the water resources program is to maintain an adequate supply of water for the livestock management program and for wildlife habitat management. The objective for the watershed program is to provide corrective actions where needed and maintain and enhance watersheds resources in a manner that sustains other natural resources and allows for appropriate land uses while maximizing public land health. The policy and regulatory basis for these objectives are listed and discussed in Chapter 2.

4.2.4.3 Assumptions

An assumption used for the analysis of the impacts of the alternatives to water, soil and watershed resources is that all of the concerns discussed in Section 4.2.4.1 that are not addressed within the alternatives would be resolved adequately by other means. For example, erosion and water pollution by sediment and other nonpoint-source pollution were clearly indicated as concerns. The BLM interdisciplinary team noted that wind and water erosion is currently the most notable process affecting the soils on McGregor Range. There are numerous programs and activities outside of the scope of this RMPA that affect erosion. The RFFAs for range improvements include many miles of expected road maintenance. The military mission of Fort Bliss requires use of the roads on McGregor Range by large convoys of heavy equipment and vehicles. Erosion control, in response to specific natural and human disturbance, is also an RFFA. As stated in Chapter 3, BLM has responsibility to the State of New Mexico in the implementation of the State nonpoint-source pollution plan, under Section 319 of the Clean Water Act (CWA). The responsibility is distinct from any direct applicability of the CWA to specific waters on McGregor Range and commits the BLM, under a memorandum of understanding (MOU), to implement the State nonpoint-source plan on the public land, in general.

In addition, the BLM interdisciplinary team identified road construction, maintenance, and use, particularly at arroyo crossings, as a concern for the potential nonpoint-source pollution and soil erosion that accompany improperly constructed and maintained roads. It was noted in the 1990 RMPA that formal drainage criteria for roads on McGregor Range have not been developed and that Fort Bliss roadway design procedures have not addressed this concern to date. However, it was determined that the development of these criteria or standards would need to be accomplished as a joint investigation by the BLM and Fort Bliss. There is no current RMP-level management decision that would have covered this issue adequately and the concern will be addressed in the long-term, joint roads management agreement between the BLM and U.S. Army.

Water resources are scarce on McGregor Range and the support of existing and planned uses of the land require adequate groundwater. The RFFAs for grazing and wildlife include eight new groundwater wells and ten new storage tanks, which also would supply wildlife. These needs, along with BLM's general responsibility to water conservation, suggest that groundwater resource conservation on McGregor Range is critical. However, there are no management decisions identified in the 1990 RMPA or current RMPA alternatives that change the existing water-conservation practices of the BLM. BLM does not have discretion over most water use (primarily associated with military and livestock use) on McGregor Range. Concerns about water resources exploration and use are most appropriately addressed under the routine implementation, which will continue to commit to a protection of the groundwater resources. Under the action alternatives, these routine actions would follow the general management guidance listed in Table 2-3, which discusses the development of both livestock and wildlife watering structures.

As discussed in Section 2.2.3, there are Federal legislative acts and BLM policy and guidance that must be incorporated into the management and protection of soils. In addition, soil management and related programs are to incorporate the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (referred to as Standards and Guides) (BLM 2000b). It is assumed that the proposed range improvement projects that are part of the RFFAs (refer to Section 4.1.2) would be completed. These projects or changes in management policy are expected to have a positive impact on McGregor Range soils.

Wind and water erosion are currently the most notable processes affecting the soils on McGregor Range. The areas susceptible to increased soil erosion either by wind or water have been mapped by the Natural Resources Conservation Service (NRCS) in the Soil Survey of the Fort Bliss Military Reservation, New Mexico and Texas (NRCS 2003). This recent survey includes ratings of the soils according to limitations or probabilities that affect suitability for military operations. The soils were rated for bivouac areas, helicopter-landing zones, and excavations for fighting positions. The survey also presents soil trafficability ratings related to the capacity of the soils to support military vehicles. These ratings tables in conjunction with the detailed soil series maps may be used to reduce or prevent measurable impacts from military operations to soils on McGregor Range. It is assumed that the military and BLM will use this soil survey as a guide for evaluating and planning activities on McGregor Range. Mitigation measures and reclamation may be required to reduce impacts on land surfaces on McGregor Range.

Soil erosion and excess sediment transport by surface water also has been attributed to some grazing practices. Many parts of New Mexico have experienced the effects of over-grazing, in the form of excessive bare ground, pedestals, gullies, blow outs, and head-cutting in adjacent drainages. Evidence of these problems has been observed on the range; although these impacts are often associated with roads, they indicate the potential for excessive, grazing-induced erosion and sedimentation. OHV use also can contribute to excess erosion. OHVs disturb soils, create ruts and potholes, and redirect arroyo channels along erosional tracks, a single OHV can cause erosional and sedimentation problems that persist long after the vehicle use occurs. OHV use also can cause problems on unimproved roads when drainage features of roadway are damaged by off-road travel.

The alternatives differ with respect to watershed resource protection; the difference being the decision to develop the watershed plans called out in the 1990 RMPA (No-Action Alternative) or to develop new watershed plans (Alternatives A and C). Alternative B does not recommend any watershed plans be developed. The original watershed plans proposed in the 1990 RMPA were developed prior to the development of the Standards and Guides. Since that time, NRCS and others have developed a new and improved rangeland assessment methodology for the use in assessing range health (i.e., Standards and Guides). The different assessment methodology is less subjective and based upon land health measurements that directly relate to the ecological function and productivity of grasslands in the arid Southwest.

These different methods have produced new results. Areas formerly believed to require additional management treatments have been demonstrated to be less critically impacted and new areas have shown themselves to be in greater need of immediate attention. In the 1990 RMPA, BLM identified the Grapevine Watershed Area, El Paso Canyon Area, and Cockleburr Watershed Management Area as the watersheds requiring watershed management plans. Under Alternatives A and C, plans would instead be written for the El Paso Draw watershed (Powell, Munson, Wildcat, Horse Camp), one for the area straddling the Sacramento and El Paso watersheds (Daggar), and one in the Culp watershed (Lower Culp).

Therefore, the primary assumption regarding the alternative's impact on water, soils, and watersheds is that the rangeland assessments indicating the new priorities are accurate, precise, and appropriate enough to clearly indicate the need for a management change. Further, it is assumed that the new watershed plans would protect the resource adequately. These are common assumptions for any planning process where new data and analysis require a mid-course correction; if basic watershed management principles are followed in the development of the plans, these assumptions do not present any unusual risk to the adequacy of this EIS.

4.2.4.4 Impacts Common to All Alternatives

Under all alternatives:

- Existing water lines and water points would be maintained so that water is available for wildlife year-round. In addition, existing facilities and newly constructed range improvements (e.g., water pipelines, wells, water troughs, storage tanks, and dirt tanks) would be maintained. Potential impacts on groundwater may result from water resources exploration and use. However, positive effects include habitat enhancement and achieving resource objectives consistent with meeting the Standards and Guides.
- Military uses impacting soils include off-road vehicle maneuvering (most of which is confined to fixed locations) and ground disturbances caused by military exercises and facility construction and demolition. Construction of the Air Force target complex on Otero Mesa has the potential to impact soils since the erodibility at this location ranges from low to high. Soils at the target site may be impacted by construction of the targets and/or grooming of the targets by blading and dragging the soil surface.
- Right-of-way grants, land use authorizations, mineral development, and other ground-disturbing activities may lead to adverse impacts on erosion levels or overland flow patterns in specific areas. However, potential impacts associated with future projects may be identified and mitigated through the site-specific analysis that would accompany each proposed action.

4.2.4.5 Alternatives

4.2.4.5.1 No-Action Alternative

The key water, soil, and watershed issue distinguishing the No-Action Alternative from the action alternatives is the commitment to the watershed management plans described in the 1990 RMPA, which have not been written. As discussed previously, the plans have not been written because of changes in the methods BLM uses to assess rangeland health.

The No-Action Alternative would require BLM to write and implement plans for the Grapevine Watershed Area, El Paso Canyon Area, and Cockleburr Watershed Management Area. Because these areas did not represent a long-term management problem under the rangeland assessments, the Standards and Guides to direct the objectives or attainment status of the watersheds with these tools. New criteria would have to be adopted that technically may be inconsistent with adjacent land management methods. This would not result in the landscape-scale range and habitat health objectives that have become part of the BLM stewardship policy. In addition, new funding would be required to develop the technical criteria required by the watershed plans.

No specific management decisions were identified in the 1990 RMPA for soils. It is assumed the military and BLM will use the Soil Survey of the Fort Bliss Military Reservation, New Mexico and Texas (NRCS 2003) for guidance in planning various activities on McGregor Range, and will use BMPs to manage activities that may have adverse impacts by developing mitigation and remediation of areas to reduce adverse impacts. Soil resources would continue to be managed according to current management guidance (Section 2.2.3) and decisions on actions are to meet the objective of "maximizing public land health." Soil resource management and related programs are to incorporate the Standards and Guides (BLM 2000b). The development of roads and other military training facilities would impact additional acreage on McGregor Range but impacts are expected to be minimal and short term. Impacts on soil resources are expected to be minimal or beneficial over the long-term, assuming the development and implementation of management plans and/or mitigation plans that are consistent with the information in the soil survey and Standards and Guides.

In summary, the impact of the No-Action Alternative would be a watershed management program at McGregor Range that is both internally inconsistent and inconsistent with recent, BLM-approved methods for land health assessment and stewardship.

4.2.4.5.2 Alternative A

Under Alternative A, soil resource management and related programs are to incorporate the Standards and Guides (BLM 2000b). General management guidance includes identifying existing roads that currently contribute to substantial or accelerated erosion and considering mitigation or relocation. Any modification to existing road infrastructure would include soil erosion mitigation. Ground cover would be maintained as much as possible to minimize erosion, consistent with the Standards and Guides. In addition to the general management guidance, any future roads would be located to minimize erosion by avoiding areas of high and moderate erosion, where possible. Where such areas cannot be avoided, measures to minimize erosion would be implemented.

This alternative also would change the location of watershed management plans from the catchments called out in the 1990 RMPA and No-Action Alternative (Grapevine Watershed Area, El Paso Canyon Area, and Cockleburr Watershed Management Area) and replace them with the watersheds selected from the range assessment data (El Paso Draw watershed [Powell, Munson, Wildcat, Horse Camp], one straddling the Sacramento and El Paso watersheds [Daggar], and one in the Culp watershed [Lower Culp]).

This alternative would afford a high degree of protection to the soil of McGregor Range while allowing for the development of roads needed to preserve existing uses of the land. Currently, the most intense use of roads is for the military mission, a mission that is vital to the larger mission of Fort Bliss, the U.S. Army and other Department of Defense users. In its primary mission of military training, it is necessary for rapid movement by large vehicles between positions on McGregor Range and full simulation of battlefield conditions. With proper mitigation and care, this activity can be and is conducted without permanent harm to soil resources or the generation of excess sediment transport in nearby streams or arroyos.

Such protection and mitigation would require a clear and unambiguous commitment to Alternative A and any joint roads management agreements between BLM and Fort Bliss, and would be fully appreciative of BLM's role in the State of New Mexico nonpoint-source pollution program.

In addition, the new prioritization and selection of areas for watershed management plans would align the watershed protection program more closely with the range assessment program and with the current technical guidance on general land health. By using the assessments to identify areas that require specific treatment, BLM would be able to define specific goals for diversity, plant productivity, surface erosion and runoff, and other functional aspects of the grassland community. The progress towards these goals can be measured regularly and evaluated by BLM range conservationists, the technical community, and public, resulting in a more adaptive and objective system of land management.

In summary, Alternative A would have a positive impact on the water, soil, and watershed resources while avoiding a limited but important impact on the military mission of McGregor Range.

4.2.4.5.3 Alternative B

Alternative B is not different from Alternative A with respect to the general management guidance for soil resources, but is very different with respect to the watershed plans. Under Alternative B, the original (1990) watershed plans would not be completed because they were selected before the current Standards and Guides were written, as detailed in the previous sections. However, the new watershed management plans discussed in Alternative A also would not be written. Instead, the individual erosional and other problems assessed by the McGregor Range program would be repaired or mitigated under the general management guidance listed in Table 2.2.

It is not entirely clear the extent to which selecting Alternative B might impact the water, soil, and watersheds of McGregor Range because there would be no clear, integrative approach to the affected watersheds. Although it is expected under the assumptions listed in 4.2.4.3 that all soils maintenance and repair activities would be accomplished quickly and with best professional judgment, the lack of an integrative watershed management plan means that the ultimate objective for the hydrologic function of the assessed streams and upland slopes might not be specified. This suggests that the success of these efforts could be "hit or miss."

Regarding the use of McGregor Range for military or resource extractive purposes, Alternative B might offer a faster and less cumbersome process to develop or implement specific follow-on proposed actions. However, even in this case there may be unrecognized or unintended consequences of individual soil- and runoff-management actions associated with specific road building or other construction that could provide long-term maintenance problems for BLM.

In summary, the lack of any watershed management plans would have an unclear impact on the soil, water and watershed resources of McGregor Range. While the short-term benefits to resource extractive and military uses might be expected, the lack of a plan might cause for longer-term problems in the affected watersheds that ultimately restrict these uses.

4.2.4.5.4 Alternative C

Under Alternative C, the new watershed plans described in Alternative A would be written, there is no difference between Alternative A and C in this respect. Alternative C differs from Alternative A in the response to areas of high erosion hazards. Under Alternative C, these areas would be closed to road building. In other areas, mitigation of erosion would be required.

Alternative C would take a very conservative approach to road building, avoiding areas that BLM believed to be particularly susceptible to erosion problems. Combined with the priority watershed plans, this alternative would provide the most protective management strategy for the Range's soil, water, and watersheds.

However, the identification of new road avoidance areas would require a McGregor Range–wide assessment, which has not been completed. The Management Situation Analysis identified areas of highly erosive soils but it did not analyze the need for road closures in these areas. This alternative also would greatly limit the ability of the U.S. Army to use the range for training purposes without extensive new environmental management activities. Erosion protection is an adaptive process, depending upon time of year, soil moisture, rainfall, and plant cover. Alternative C would remove some of this management adaptability from BLM and Fort Bliss.

Alternative C would close McGregor Range to grazing. Because all current and future grazing must meet the Standards and Guides and must be monitored for destructive erosion and sedimentation, no impact on soils and water is expected from the grazing closures. Alternative C also would close the range to OHV use. Though impacts on erosion and sedimentation from this aspect of Alternative C are difficult to predict, beneficial, qualitative impacts from restricting OHV use would be expected.

4.2.5 Air Quality

4.2.5.1 Resource Concerns

Although there were no specific air quality issues raised by the public during scoping, various activities in the Planning Area may have an impact on air quality. These potential impacts have been evaluated for each of the alternatives to determine the overall effect they would have on air quality within the McGregor Range.

4.2.5.2 Objectives

The air quality objective for McGregor Range is to ensure that all BLM actions and use authorizations comply with all applicable Federal, State, and local, air quality laws, statutes, regulations, standards, and implementation plans.

4.2.5.3 Assumptions

Air quality impacts were assessed only for those activities described in the four alternatives discussed in Chapter 2 of this EIS. These impacts were assessed in a qualitative manner due to the lack of information that would be required to calculate predicted air emissions. Specifically, in the case of determining emissions due to soil disturbance, various parameters related to the soil being disturbed (i.e., moisture and silt content), and the actual meteorological conditions (i.e., wind speed) would be required. As for calculating emissions related to prescribed burning and wildfires, the type of material being burned would need to be specified. Quantitative analysis of air impacts would be accomplished upon implementation of site-specific actions following adoption of a new RMPA.

4.2.5.4 Impacts Common to All Alternatives

For the purposes of this EIS, the air quality impacts that need to be addressed for McGregor Range include the disturbance of the soil due to construction activities, livestock management, mining, or off-road vehicle use, and emissions associated with wildfires or prescribed burns. The following impacts would be common to all of the alternatives:

- Extraction of saleable minerals would result in temporary impacts due to the entrainment of particulate matter as the soil is disturbed, as well as potential emissions associated with combustion equipment used to mine material at McGregor Range. If mineral leasing and entry for mining of locatable minerals is allowed, similar impacts would occur. If more extensive mining were to occur at McGregor Range, then these impacts may become more long lasting rather than temporary. Impacts resulting from the entrainment of particulate matter can be minimized with proper implementation of dust control measures.
- Activities associated with managing livestock (such as dust from haul trucks, pickups, and trailers) would result in short-term adverse impacts due to the entrainment of particulate matter as the soil is disturbed. These impacts will be mainly concentrated around livestock working facilities. Air quality impacts can be minimized with the proper implementation of dust control measures.

- Replacing existing pipelines and constructing new pipelines, wells, water troughs, corrals, roads, water storage tanks, and dirt tanks would result in temporary impacts due to the entrainment of particulate matter as the soil is disturbed. Overall, impacts expected to occur as a result of earth moving for typical construction projects are minimal, localized, and of short duration. Air quality impacts could be minimized further if the appropriate operating techniques are used during construction activities to ensure that air quality emissions are reduced to the extent practical.
- Prescribed burns would result in temporary impacts as the material is burned. The extent of these emissions would depend on the type and amount of material that is being burned. Air quality impacts would be minimized through the use of an appropriate fire-management plan and through the provisions of the MOU for smoke management among the BLM, New Mexico Environment Department, Forest Service, National Park Service, USFWS, and New Mexico Department of Energy, Minerals, and Natural Resources (see Section 3.14.4.1).

4.2.5.5 Alternatives

4.2.5.5.1 No-Action Alternative

The No-Action Alternative retains existing decisions and policy associated with the 1990 RMPA for McGregor Range. In addition to the impacts common to all alternatives, there is only one additional activity in the No-Action Alternative that was identified as having a potential impact on air quality emissions. Recreational vehicle use on all of the McGregor Range would be limited to existing roads and trails and the area of the Escondida Site would be closed to OHV use, thereby limiting the use of recreational vehicle impacts on air quality to existing roads. Impacts could be minimized further by implementing dust-control measures on the existing roads and by limiting the maximum traveling speed of OHVs.

4.2.5.5.2 Alternative A

Alternative A modifies the No-Action Alternative (i.e., existing management situation) to provide a balance between resource use and resource conservation. Impacts would include those common to all alternatives. In addition, OHV use would be limited to existing roads and trails, except that the area of the Escondida Site and all ACEC areas would be closed to OHV use. The additional closure areas would reduce air quality impacts as compared with the No-Action Alternative.

4.2.5.5.3 Alternative B

Alternative B provides a greater emphasis on resource production and use. Impacts would be the same as the No-Action Alternative, with the difference that Alternative B emphasizes new roads for access to public land for recreation, research, and other authorized uses on McGregor Range. The construction and use of additional roads would result in additional impacts on air quality. Emissions associated with the construction of the roads would be temporary, but those associated with the actual use of the road would be long lasting. These emissions can be reduced if dust control measures are implemented both during and after construction.

4.2.5.5.4 Alternative C

Alternative C provides a greater emphasis on resource protection. In addition to the impacts common to all alternatives identified in Section 4.2.5.4, there is one additional activity in Alternative C that was identified as having a potential impact on air quality. OHV use would be limited to designated roads and trails on McGregor Range except the following areas would be closed: Escondida Site, all ACECs, WSAs, and military impact areas. Furthermore, no public recreation would be allowed on McGregor Range. Implementation of this alternative would result in a decrease in the impacts on air quality due to reduced usage of OHVs, as compared with the No-Action Alternative.

4.2.6 Vegetation

4.2.6.1 Resource Concerns

During the scoping process, the public expressed concerns about seed collection, monitoring and assessment of vegetation, protection of grasslands and biodiversity, and control of noxious weeds on the withdrawn public land. The BLM interdisciplinary team also identified evaluation of the 3,910-acre Black Grama Grassland ACEC, continuance of the vegetative sales, and conducting monitoring studies on withdrawn public land as concerns related to continued management of McGregor Range. In response to these concerns, the alternatives explore options for the Black Grama Grassland ACEC, vegetative sales, planning for noxious weed management, and other management guidance.

4.2.6.2 Objectives

The BLM has developed two objectives for vegetation management on withdrawn public land. The first objective is to maintain a desirable vegetation resource that maximizes public land health, supports the livestock grazing program, maximizes wildlife habitat functions and values, and supports the needs of special-status species. The second objective is to maintain a noxious weed program on withdrawn public land to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause, while maximizing public land health. The second objective will be carried out by means of an MOU with BLM and a cooperative agreement with Otero County, which are described in detail in Section 2.2.6.

4.2.6.3 Assumptions

Potential impacts affecting vegetation and its value as wildlife habitat and livestock forage were analyzed in accordance with National Environmental Policy Act (NEPA). Criteria defined by the USDA, U.S. Department of the Interior (USDI), Carlson-Foley Act, Federal Noxious Weed Act, CWA, and Executive Order 13112 are discussed in Section 2.2.6 and were used as guidelines to determine thresholds of impacts for each alternative. For purposes of this EIS, short-term impacts on vegetation would be considered adverse that:

- Lead to substantial ground disturbance of native upland vegetation
- Lead to substantial ground disturbance of jurisdictional wetland vegetation
- Lead to the expansion of invasive weed species or soil pests such that they interfere with successful revegetation

Long-term impacts on vegetation would be considered adverse that:

- Result in the long-term substantial alteration of unique, rare, or special-concern vegetation types (e.g., riparian vegetation) or natural communities, including when caused by noxious weeds
- Result in a substantial long-term loss of existing wildlife or aquatic habitat
- Cause a permanent loss of designated or proposed critical habitat

4.2.6.4 Impacts Common to All Alternatives

As described in detail in Section 3, the three major plant community types found on McGregor Range are desert grasslands, shrublands, and woodlands. Within BLM's Decision Area, shrublands constitute approximately 52 percent (349,830 acres), desert grasslands constitute 47 percent (317,879 acres), and woodlands cover 1 percent (7,840 acres) of McGregor Range. The arroyo desert shrub and mixed shrub mountain plant communities of McGregor Range are areas of high plant diversity. Grasslands dominated by blue grama provide good foraging for livestock, a wide diversity of plant life, and moderate-to-high wildlife species diversity. Woodland communities are found in the Sacramento Mountains and support high wildlife species diversity.

Under all alternatives:

- Ground-disturbing activities would be expected to have a nominal direct impact on vegetation as a result of the RFFAs. Ground-disturbing activities should avoid the higher-diversity communities discussed in Section

4.2.1.3, as well as avoid arroyos and Waters of the U.S. If arroyos and Waters of the U.S. cannot be avoided, it would be necessary to complete the Clean Water Act 404 permit process before any ground disturbance could occur.

- Areas cleared of vegetation would be susceptible to invasion by noxious weeds. Measures should be taken to avoid their spreading in accordance with Federal laws (see Section 2.2.6), and consistent with the Noxious Weed Management Plan to be developed in coordination with Fort Bliss (see Table 2-2).
- Prescribed burns would occur under all alternatives and would, over the long term, promote biodiversity and forage production.

4.2.6.5 Alternatives

4.2.6.5.1 *No-Action Alternative*

Under this alternative, no changes would be made to the existing management. While the Black Grama Grassland ACEC would be maintained, vegetative sales and seed collection would continue on 25,858 acres without conditions of vegetation value being imposed for continuation of sales. The prevention or control of noxious weeds would not be programmed beyond existing agreements and Federal requirements (see Section 2.2.6). BLM would conduct monitoring studies to determine watershed and range conditions. Impacts that could occur under existing management include increased invasion by noxious weeds and a decrease in vegetation community diversity.

4.2.6.5.2 *Alternative A*

Under Alternative A, general management guidance would include guidelines on seed collection, monitoring and assessment of vegetation, and noxious-weed control. Seed collection guidelines would allow portions of McGregor Range to be available for BLM to collect seeds for restoration projects. Areas would be monitored by BLM every 3 years to determine impacts from seed collection. The monitoring and assessments guidelines would require the BLM to conduct assessments to ensure that the ecological sites are meeting their established public land health standards in terms of vegetation components and to take management actions, as appropriate. Sites identified as needing improvement would be monitored annually; sites that are identified as static to improving would be monitored every 3 years. The guidelines for noxious weed control would stipulate that BMP develop a noxious weed management plan for McGregor Range in coordination with Fort Bliss and incorporate Fort Bliss noxious weed surveys as available. These activities provide a general vegetation management and protection process by maintaining overall monitoring of the vegetation on McGregor Range and would be considered beneficial.

In addition to the general management guidance, vegetative sales areas would be decreased from 25,858 acres in the No-Action Alternative to 19,575 acres through the exclusion of Centennial Range. Furthermore, conditions would be identified for further removal of vegetation and seed collection based on the ecological condition of the vegetation community at the time of removal. These additional stipulations would be considered beneficial.

4.2.6.5.3 *Alternative B*

General management guidance and potential impacts (and mitigation and/or BMPs as applicable) associated with this alternative are the same as Alternative A, with the following exceptions. Under Alternative B, increases in vegetative sales areas from 25,858 acres in the No-Action Alternative to 205,801 acres would occur and the Black Grama Grassland ACEC designation would be eliminated. This would provide a greater emphasis on resource production and use on McGregor Range. Effects that could result from this alternative include substantial long-term decrease in vegetation on public land, and substantial long-term alteration of the vegetation and wildlife habitat within the ACEC as a result of the loss of protection provided by the ACEC.

4.2.6.5.4 *Alternative C*

General management guidance, the continuation of the Black Grama Grassland

ACEC designation, and associated potential impacts (and mitigation and/or BMPs as applicable) are the same as Alternative A, with the following exceptions. Under Alternative C, vegetative sales would decrease from 25,858 acres in the No-Action Alternative to 0 acres. These impacts on vegetation are considered beneficial since less would be removed from McGregor Range.

4.2.7 Wildlife Habitat

4.2.7.1 Resource Concerns

During the scoping process, the public expressed concerns about wildlife management and potential impacts on habitat, habitat management and fragmentation, the use of Otero Mesa as a wildlife corridor, and the use of animal damage control (ADC) on McGregor Range. The BLM interdisciplinary team identified similar concerns, including grassland habitat fragmentation. These issues are evaluated throughout the alternatives to address habitat management plans (HMPs) and new general management guidance.

4.2.7.2 Objectives

There are three objectives for the wildlife habitat management program on withdrawn public land. The first objective is to restore, maintain, and enhance habitat conditions to ensure optimum populations and a natural abundance and diversity of wildlife. The second objective is to conserve rare, vulnerable, and representative habitats, plant communities, and ecosystems. The third objective is to maximize public land health.

4.2.7.3 Assumptions

Criteria defined by the USDA, USDI, New Mexico Department of Game and Fish (NMDGF) and BLM are discussed in Section 2.2.7 and were used as guidelines to determine thresholds of adverse impacts for each alternative. For purposes of this EIS, impacts on wildlife habitat would be considered adverse that:

- Cause a loss of population or habitat of sensitive species that would cause the species to become listed as endangered or threatened
- Interfere substantially with the regional movement of resident or migratory fish or wildlife species
- Result in a substantial long-term loss of existing wildlife or aquatic habitat
- Result in take of any part, nest, or egg of a migratory bird species included in the terms of the Migratory Bird Act of 1918

4.2.7.4 Impacts Common to All Alternatives

The wildlife habitat program at McGregor Range is coordinated with NMDGF and Fort Bliss through several MOUs. Coordination with these entities and the implementation of the Fort Bliss Integrated Resource Management Plan (INRMP) would continue under all alternatives.

Under all alternatives:

- The emphasis of habitat management in the Fort Bliss INRMP is to conserve biodiversity. Habitat management actions are to be implemented with an ecosystem approach and not on a species-by-species basis. Measures to reduce impacts from military activities on wildlife are identified and include restrictions on activities, as well as designation of unique and sensitive areas for special protection. These unique and sensitive areas include arroyos, cliffs, black grama grasslands, Otero Mesa, and the Hueco Mountains.
- Ground-disturbing activities are expected to have a nominal direct impact on vegetation as a result of the RFFAs.
- Existing and planned human disturbance would include roads, range improvements, transmission lines, and disturbed sites. The development of linear facilities is not expected to affect wildlife or use of habitat, since the typical dirt, single-lane road developed as access along a transmission line or other utility route would not provide substantial barriers to wildlife movement. Thus, impacts that could cause habitat fragmentation or decreased wildlife corridors are not anticipated to occur as a result of activities on McGregor Range. However, the

construction and use of linear facilities may facilitate the introduction of exotic species to an area.

- Prescribed burns or wildfires would result in short-term effects on wildlife related to smoke, or loss of vegetation and habitat. However, long-term effects may include improved rangeland condition and wildlife habitat.

4.2.7.5 Alternatives

4.2.7.5.1 No-Action Alternative

Under the No-Action Alternative, no changes would be made to the current management. HMP areas include approximately 606,232 acres. Current management includes several planned actions that involve the creation, maintenance and evaluation of HMPs; implementation of a program of inventory and monitoring studies for wildlife and wildlife habitat; allocation of wildlife forage areas; preparation of a multi-agency MOU for wildlife management on McGregor Range; and coordination of ADC activities under the annual ADC Plan. The evaluation of existing HMPs could result in reduced protection for wildlife habitat and forage/cover areas. Coordination of ADC activities is considered a neutral impact because the program would continue to be guided by the overall objectives of restoring, maintaining, and enhancing habitat conditions that promote the natural abundance and diversity of wildlife.

4.2.7.5.2 Alternative A

General management guidance would include ADC activities and the development of guidelines for coordination of wildlife management. Guidelines would be in the form of an MOU among BLM, Fort Bliss, and NMDGF to coordinate the management of wildlife and exotic species. Hunt data collection also would be conducted on an annual basis. The general management guidance would also identify animal-control measures to meet wildlife habitat objectives . These activities would provide a general wildlife habitat management process by maintaining overall monitoring of the wildlife on McGregor Range and would be considered beneficial.

In addition to general management guidance, an HMP for the Sacramento Mountains foothills and an HMP for grasslands on Otero Mesa would be developed and implemented. The total area within HMPs under Alternative A would total approximately 205,109 acres. Although the specific components of these HMPs have not yet been developed, the management focus on habitat values would be considered beneficial to wildlife habitat.

4.2.7.5.3 Alternative B

General management guidance and potential impacts associated with this alternative are the same as Alternative A, with the following exceptions. Under Alternative B, wildlife habitat within grasslands and the Sacramento Mountains foothills would be managed without the development of HMPs. This reduction of protection would be considered an impact if it leads to a substantial loss of grasslands that support small mammal populations important as raptor prey.

4.2.7.5.4 Alternative C

General management guidance and potential impacts associated with this alternative are the same as Alternative A, with the following exceptions. Under Alternative C, the area included in the HMPs for grasslands and the Sacramento Mountains foothills as described in Alternative A would be larger, for a total of approximately 352,530 acres within HMP areas. The larger area that would be subject to a management focus on habitat values would offer additional resource protection.

4.2.8 Special Status Species

4.2.8.1 Resource Concerns

During the scoping process, the public indicated that the identification and protection of habitats for special status species were a concern. Several species had been elevated since the 1990 Resource Management Plan, including the aplomado falcon, mountain plover, and black-tailed prairie dog. Mountain plover and black-tailed prairie dog have subsequently been dropped from ESA listing, but are still considered BLM sensitive species. Although dropped from the ESA list, they will continue to be monitored by USFWS for recovery, and actions should continue to be taken to prevent future listing of these species. Release opportunities for the aplomado falcon are evaluated in the alternatives in response to concerns for this species, and special status species habitat survey and management considerations are included in the general management guidance for the action alternatives.

4.2.8.2 Objectives

The objective of the special status species program is to preserve, enhance, and maintain habitat conditions for the conservation of special status species on withdrawn public land while maximizing public land health.

4.2.8.3 Assumptions

Impacts affecting special status species were analyzed in accordance with NEPA. Criteria defined by the USDI, NMDGF, Endangered Species Act, BLM, New Mexico Endangered Plant Species Act, Wildlife Conservation Act, Bald Eagle Protection Act of 1940, and the Migratory Bird Treaty Act were used as guides to determine criteria for adverse impacts for each alternative. For purposes of this EIS, impacts on special status species could result from actions that:

- Cause a loss of population or habitat of sensitive species that would cause the species to become listed as endangered or threatened
- Cause an adverse effect by reducing the number or causing a restriction of the range of an endangered, threatened, or rare species
- Cause an adverse affect on a rare, threatened, or endangered species of animal or plant or its habitat
- Result in take or possession of and commerce in bald or golden eagles

4.2.8.4 Impacts Common to All Alternatives

A variety of habitat types provide important environments for growth, foraging, cover, and reproduction and rearing for aplomado falcon, a Federal endangered species. Grasslands, mesquite sand dunes, and piñon-juniper woodlands are the most important habitat types on McGregor Range to special status species. Seven sensitive plant species and 13 sensitive wildlife species are known to occur on McGregor Range and are listed in Tables 3-6 and 3-7.

Under all alternatives, the emphasis of habitat management in the Fort Bliss INRMP is to conserve biodiversity. Because habitat management actions are to be implemented with an ecosystem approach and not on a species-by-species basis, implementation of the INRMP is expected to benefit special status species.

4.2.8.5 Alternatives

4.2.8.5.1 No-Action Alternative

Under the No-Action Alternative, no changes would be made to the current management, so no specific management decisions would exist for special status species. The lack of surveys and potential identification of new special status species, as well as the lack of specific management directives, could lead to long-term adverse impacts on special status species. The Black Grama Grassland ACEC would benefit potential aplomado falcon habitat, forage and nesting habitat for other special status bird species, and habitat for special status plant species. Continued livestock grazing within McGregor Range also would benefit those species that may use habitat in rangelands and grasslands, including western burrowing owl, Baird's sparrow, and loggerhead shrike.

4.2.8.5.2 Alternative A

General management guidance would include guidelines for managing special status species habitats and conducting surveys. The guidelines stipulate that surveys and the identification of special status species must be completed in conjunction with assessments for other actions, and that adverse effects on these species and their habitats should be avoided, or mitigated if impacts are avoidable. These activities would provide a continuing process for special status species management on McGregor Range and would be considered beneficial.

In addition to the general management guidance, BLM would cooperate with the USFWS on the release of aplomado falcons under

Section 10J of the Endangered Species Act. If Otero Mesa were identified by the USFWS as one of the areas for release, the Grassland Habitat HMP would be expanded to address aplomado falcon management issues. These activities would be considered beneficial to all special status species. The Black Grama Grassland ACEC also would benefit potential aplomado falcon habitat.

4.2.8.5.3 Alternative B

General management guidance and potential impacts associated with this alternative are the same as Alternative A, with the exception that aplomado falcon release opportunities would not be considered on McGregor Range and the Black Grama Grassland ACEC would be eliminated. The elimination of the ACEC would end habitat protections that benefit aplomado falcon and other special status species, including western burrowing owl, loggerhead shrike, and Baird's sparrow. Many of the special status species are found in riparian habitats (which are protected independent of the ACEC), in desert scrub habitats, and in montane woodland or canyon habitats outside of the proposed ACEC designation.

4.2.8.5.4 Alternative C

General management guidance, release opportunities for aplomado falcons, and associated potential impacts are the same as Alternative A.

4.2.9 Livestock Grazing

4.2.9.1 Resource Concerns

The scoping process revealed support for the continuation of grazing operations, as well as concern about potential adverse impacts caused by grazing. The BLM interdisciplinary team also identified construction of range improvements, ADC issues, and clarification of the contract administration process to assist in coordinating grazing with the management of other resources. To address the variety of concerns about livestock grazing, the alternatives include options for limits on grazing, grazing seasons, forage utilization by grazing animals, grazing facility maintenance, construction of range improvements, and ADC issues throughout McGregor Range.

4.2.9.2 Objectives

The objective of the grazing management program is to maximize public land health by means of a self-sustaining grazing program, accomplished through optimal management of desired plant communities and competitive bidding of grazing units at public auction.

4.2.9.3 Assumptions

Impacts affecting livestock grazing were analyzed in accordance with NEPA. Criteria defined by the FLPMA, the Federal Material Disposal Act of 1947, Standards and Guides, and BLM Handbooks H-41810 and H-4180-1, are discussed in Section 2.2.9 and were used as guides to determine thresholds of impacts for each alternative. For purposes of this EIS, impacts on the livestock grazing program would be considered adverse that:

- Lead to substantial ground disturbance of grassland areas that support livestock grazing
- Lead to substantial decrease in key forage species on McGregor Range
- Lead to the expansion of invasive weed species
- Lead to a substantial decrease in the ecological range condition class on McGregor Range

The vegetation management program also is relevant to livestock grazing because of potential impacts on forage; therefore, the discussion of each alternative includes discussion of impacts on vegetation.

4.2.9.4 Impacts Common to All Alternatives

Management of livestock grazing is currently guided by BLM manuals and the Standards and Guides. The ecological conditions on McGregor Range are monitored annually to determine the units that will be available for grazing, length of the grazing season, and livestock use on each unit. Grasslands constitute approximately 47 percent (317,879 acres) of vegetation on McGregor Range, and those dominated by blue grama are the major plant communities used for livestock forage.

Under all alternatives:

- Ground-disturbing activities are expected to have a nominal direct impact on livestock grazing areas as a result of the RFFAs, which would occur independent of the alternatives addressed in this document (see Section 4.1.2).
- Areas within rangelands are susceptible to invasion by noxious weeds, which would impact the ecological condition of the livestock grazing units. Measures would be taken to avoid the spread of noxious weeds in accordance with Federal laws (see Section 4.2.6 on Vegetation).
- Vegetative sales and seed collection also could lead to long-term impacts on livestock grazing if those actions cause the spread of noxious weeds or a decline in the ecological range condition, which may reduce the number of animal unit months (AUMs) that can be supported on McGregor Range (see Section 4.2.6).
- Livestock grazing could impact fire management by changing vegetation conditions that could affect the success of a prescribed burn, or by hampering vegetation recovery post-burn.

4.2.9.5 Alternatives

4.2.9.5.1 No-Action Alternative

Under this alternative, no changes would be made to the existing management, which includes:

- A grazing season would be established between October 1 to June 30, subject to the discretion of the BLM Field Manager, with summer grazing available on some units
- Competitive bidding at public auction would continue to determine the right to use livestock forage, with the continued limit of cattle and no more than three horses per pasture
- No more than 50 percent of key forage species would be utilized each year
- Livestock would be redistributed as necessary; ecological conditions would continue to be monitored annually
- All grazing-related facilities would be maintained and repaired by BLM
- BLM would construct 47.75 miles of unimproved roads and three new corrals
- Grazing would only be allowed on the 271,000 acres within the 14 grazing units.

Under the No-Action Alternative, vegetative sales and seed collection would continue without conditions of vegetation value for continuation of sales, and a plan for the prevention or control of noxious weeds would not be implemented (see Section 4.2.5.5.1). Impacts that could occur under existing vegetation management include a decrease in grassland community diversity and increased invasion by noxious weeds that would adversely affect the ecological range condition and impact livestock use. To avoid impacts during rangeland maintenance and construction of roads and corrals, substantial ground disturbance to grassland areas used for livestock forage should be avoided. The Co-Use HMP area grazing restrictions, limits on grazing by season and ecological condition, and limits on key forage species utilization would serve to reduce impacts on rangelands and maintain sustainability of livestock use.

4.2.9.5.2 Alternative A

General management guidance would include guidelines on construction of range improvements and use of ADC measures throughout McGregor Range. Guidance on range improvement construction would require that new construction maintain or improve the desired plant community, maximize public land health, and assist in the management of livestock. It also stipulates that ADC would be coordinated between the USDA, Animal and Plant Health Inspection Service, and BLM to meet objectives for livestock grazing. These activities would result in beneficial impacts on grazing resources.

In addition to the general management guidance:

- Grazing seasons would be determined on a unit-by-unit basis on the existing 14 grazing units; the grazing season would be adjusted to sustain the competitive nature of the grazing program, and if forage utilization is not consistent with desired future condition, livestock numbers would be adjusted or grazing would be deferred during the growing season
- Livestock grazing would continue to be limited to cattle and no more than three horses per pasture
- BLM would be responsible for all grazing-related facilities and maintenance of wildlife waters year-round
- Grazing would be limited to the 14 existing grazing units

Determination of grazing seasons on a unit-by-unit basis based on consideration of ecological condition would maximize livestock use while ensuring resource sustainability. Alternative A also would decrease vegetative sales areas from 25,858 acres in the No-Action Alternative to 19,575 acres. Furthermore, conditions would be identified for additional removal of vegetation and seed collection based on the ecological condition of the vegetation community at the time of removal. These would be considered beneficial to the livestock grazing program.

4.2.9.5.3 __Alternative B__

General management guidance and potential impacts associated with this alternative are the same as Alternative A, with the exception that the type of livestock and the number of horses per pasture would be determined based on ecological conditions. This would have a beneficial effect by providing opportunities for use by other types of livestock, and potentially more horses, while protecting the sustainability of the grazing program.

Alternative B increases vegetative sales areas from 25,858 acres in the No-Action Alternative to 205,801 acres and eliminates the Black Grama Grassland ACEC designation. This would reduce the protection of the grasslands, providing a greater emphasis on resource production and use on McGregor Range. Possible effects include an increase in the potential for invasion by noxious weeds, reducing ecological range condition and thereby reducing the number of AUMs that these areas can support. However, lands that were formerly within the ACEC would become available for grazing.

4.2.9.5.4 __Alternative C__

Under Alternative C, no livestock grazing would occur on McGregor Range, eliminating the need to determine livestock grazing seasons or forage utilization limits. This alternative would improve ecological range condition; however, it would eliminate livestock grazing on McGregor Range.

4.2.10 Fire Management

4.2.10.1 Resource Concerns

During scoping, concern was raised over the potential hazards of live-fire training by Fort Bliss, notification procedures with regard to fire hazards, and minimization of fire dangers. The BLM interdisciplinary team also identified issues related to fire control and prescribed fire including the scope of fire suppression responsibilities, identification and mitigation of wildfire hazards, and the use of prescribed fire to improve or maintain vegetation and habitat conditions and reduce risk of wildfire in urban interface areas. These concerns are addressed in the alternatives through the development of a fire management plan.

4.2.10.2 Objectives

The objective of the fire management program is to allow fire to resume a natural ecological role on public land, reduce fire-suppression costs, reduce acreage damaged by severe wildfires, increase public safety regarding wildfires, and maximize public land health.

4.2.10.3 Assumptions

It is assumed that the Fire and Fuels Management Plan Amendment and Environmental Assessment (EA) for Public Land in New Mexico and Texas (BLM 2004) and the

Timberon Hazard Fuels Reduction and Woodland Management EA (BLM 2003b) will be implemented and would conform with the plans proposed under all alternatives. These documents establish BMPs for vegetation treatment and hazard fuel reduction in and around the community of Timberon, which is fire-endangered and located immediately north of the Planning Area.

Safety concerns related to military training are addressed in an MOU between BLM and Fort Bliss. The provisions of the MOU would continue under all alternatives.

4.2.10.4 Impacts Common to All Alternatives

All alternatives include the development of a plan to conduct prescribed burns. It is not clear at this time what areas would be addressed through the proposed plan, but it is assumed that the plan would conform with the Fire and Fuels Management Plan Amendment and EA for Public Land in New Mexico and Texas, when finalized, and would include appropriate considerations to protect the urban interface and military impact areas from fire hazards. These considerations may include an evaluation of conditions prior to a prescribed burn, including humidity, wind direction, and fuels moisture.

Under all alternatives:

- Direct effects from prescribed burns or wildfire are short-term and may include loss of vegetation, smoke, potential threats to areas of urban interface, and visual impacts related to the loss of vegetation and scorching.
- Potential effects resulting from excessive smoke may be mitigated through the implementation of measures included in the MOU for smoke management among the BLM and the New Mexico Environment Department, Forest Service, National Park Service, USFWS, and New Mexico Department of Energy, Minerals, and Natural Resources (Forest Service 1997).
- Indirect or long-term effects on other resources include improvement of rangeland condition and wildlife habitat. Fire promotes biological diversity and forage production, and reduces fuels available for wildfire, mitigating threats to individuals and communities.

4.2.10.5 Alternatives

4.2.10.5.1 No-Action Alternative

Under the No-Action Alternative, BLM would prepare plans for prescribed burn projects on 220,800 acres, and conduct the prescribed burns. The potential impacts are described in Section 4.2.10.4.

4.2.10.5.2 Alternative A

Under Alternative A, a plan would be developed to address operational criteria for prescribed burns, a monitoring program, and the development of burn plans to support the recovery of special status species. The plan would address the entire Decision Area, encompassing a larger area than the No-Action Alternative, and incorporate recent fire-management planning. The potential impacts are the same as the No-Action Alternative, and are described in Section 4.2.10.4.

4.2.10.5.3 Alternative B

Potential impacts associated with this alternative are the same as those in Alternative A.

4.2.10.5.4 Alternative C

Potential impacts associated with this alternative are the same as those in Alternative A, except that the elimination of grazing could result in long-term impacts related to excessive fuel (vegetation) build-up, including the potential for hotter fires.

4.2.11 Hazardous Materials

4.2.11.1 Resource Concerns

The need to identify hazardous waste sites and suspected hazardous waste sites on McGregor Range was noted in the scoping comments. Once a list of sites has been assembled, it was suggested that agreements be reached with the U.S. Army that specifies the responsibility of the Department of Defense for hazardous waste cleanup. Because management of this issue is the responsibility of the U.S.

Army, BLM has no jurisdiction over clean-up activities. However, the U.S. Army has protocol in place to control the risk associated with public exposure to hazardous waste. Finally, it was suggested that Fort Bliss provide a backstop at firing ranges to collect lead bullets, thus reducing the incidence of hazardous waste deposited on and under the ground surface.

4.2.11.2 Objectives

The objective of the hazardous waste program on McGregor Range is to comply with all applicable Federal laws, regulations, and guidance documents governing the management of hazardous materials and wastes. Accordingly, the BLM and U.S. Army policies and procedures regarding treatment, storage, or disposal of hazardous materials are consistent with these regulations. With regard to hazardous waste, the U.S. Army has complied with the Department of Defense's Installation Restoration Program (IRP) to identify the locations and contents of past toxic and hazardous material disposal and spill sites in order to eliminate the hazards to public health in an environmentally responsible manner. Of the eight IRP sites identified on McGregor Range, five are either in a no-further-action status or in the process of being closed, and three remain active. While none of the eight sites has achieved regulatory closure, it is the objective of the U.S. Army to continue its efforts to close the sites.

4.2.11.3 Assumptions

It is assumed that compliance with all applicable Federal laws, regulations, and guidelines will continue to be observed by the U.S. Army and BLM. Accordingly, the U.S. Army will continue to establish and maintain applicable policies and procedures for public protection in areas where the public has access. Further, it is assumed that the U.S. Army will continue its efforts to close the eight IRP sites according to Department of Defense requirements. These assumptions would be consistent for all alternatives.

4.2.11.4 Impacts Common to All Alternatives

Access to McGregor Range is necessarily limited by the priority given to the military mission and associated risks. In addition, compliance with all Federal laws, regulations, and guidelines is required. Under all alternatives, these circumstances would continue.

4.2.11.5 Alternatives

4.2.11.5.1 No-Action Alternative

Under the No-Action Alternative, current management programs and policies would continue to be observed. The BLM has no authority over the U.S. Army's current policies and procedures. Hazardous materials would continue to be kept by the U.S. Army in *de minimus* amounts and disposal of hazardous wastes would be handled according to applicable laws and policies. The U.S. Army would continue to restrict public access to areas of risk. BLM would continue to respond to reports of hazardous waste spill incidents found in areas where the public has access and would perform necessary cleanup.

4.2.11.5.2 Alternative A

Under Alternative A, general policies and procedures regarding management of BLM hazardous materials and wastes would continue to be enforced by BLM. With the designation of two additional utility corridors, the additional possibility of the presence of hazardous waste in the form of vehicle and construction activity would increase. This also would occur with the establishment of any new roads or maintenance activities. No specific impacts related to hazardous materials would be expected for mineral and energy resources, soil resources, water and watershed management, vegetation, fire management, livestock grazing, wildlife habitat, special status species, visual resources, wilderness study areas, cultural resources, or paleontological resources.

4.2.11.5.3 Alternative B

Alternative B would place a greater emphasis on resource production and use, allowing for more development. As such, additional utility corridors would be established, requiring construction activities and use of hazardous materials in relation to construction equipment. This also would occur with the additional maintenance of areas and routes for public access and the establishment of new roads for public access to land for recreation, research, and other authorized uses on McGregor Range. No change in BLM policies and procedures regarding the treatment, storage, or disposal of hazardous materials or the cleanup of hazardous wastes would result from implementation of this alternative.

4.2.11.5.4 *Alternative C*

Alternative C places a greater emphasis on resource protection, limiting public access, and reducing the occurrence of construction and development. Fewer roads would be established and some existing roads would be closed. Under this alternative, no public recreation would be allowed on McGregor Range, eliminating the need for public education concerning hazardous materials. While the occurrence of hazardous materials as a result of construction activities would be reduced with the greater emphasis on resource protection, no change in BLM policies and procedures regarding the treatment, storage, or disposal of hazardous materials or the clean-up of hazardous wastes would result from implementation of this alternative.

4.2.12 Cultural Resources

4.2.12.1 Resource Concerns

During public scoping and contacts with the State Historic Preservation Office, Mescalero Apache Tribe, and Fort Sill Apache Tribe the following concerns were identified:

- Protect cultural and historic resources
- Preserve Indian artifacts on the range
- Inventory cultural resources in the area covered by the RMPA, and provide opportunities to review cultural resource inventories and surveys
- Address Section 110 of the National Historic Preservation Act requirements for inventory
- Describe the database used for making cultural resource management decisions on the withdrawn public land not included in direct military impact areas
- Document and address traditional Apache land uses in the area
- Ensure that concerns of custom and culture are analyzed
- Archaeological and historic sites, including historic home sites and out buildings, qualify for special designation under FLPMA, and need special protection and preservation
- Consider secondary effects on cultural resources resulting from changes in land use in the vicinity of military-acquired parcels, and displacement of activities from those parcels to other areas

In addition to public scoping, the BLM interdisciplinary team identified concerns about protection of high-value sites such as the Escondida Site and more coordination of BLM cultural resource management activities with those sponsored by Fort Bliss.

4.2.12.2 Objectives

The objectives of the cultural resource program are to preserve and protect significant cultural resources on the withdrawn public land and ensure that they are available for appropriate uses by present and future generations. Imminent threats from natural or human-caused deterioration, or potential conflicts with other resource uses, are to be reduced by identifying priority geographic areas for new field inventory, based upon a probability for unrecorded significant resources.

4.2.12.3 Assumptions

The BLM cultural resource management program has been developed to comply with numerous Federal laws, implementing regulations, and other policy documents regarding cultural resources and historic preservation. The impact analysis assumes that the program will continue to be implemented in accordance with general BLM policies. The four major elements of the primary program include (1) inventory and evaluation, (2) protection and preservation, (3) resource use in accordance with resource allocations, and (4) planning. The impact analysis also assumed that BLM would continue the compliance (support) aspect of the program by reviewing all specific projects in accordance with Section 106 of the National Historic Preservation Act. These reviews would take into account potential effects on cultural resources eligible for the National Register of Historic Places (National Register), and work to modify proposed activities to avoid any identified adverse effects where feasible, or to implement measures to reduce or mitigate adverse effects developed in consultation with the State Historic Preservation Officer and other interested agencies and parties.

4.2.12.4 Impacts Common to All Alternatives

Archaeological and historical resources important for scientific uses are the most common type of cultural resource on McGregor Range. Potential adverse effects to such sites generally stem from ground-disturbing activities. Military activities, rather than BLM actions, represent the greatest source of potential impacts and those effects are addressed by Fort Bliss. The projected ground-disturbing activities that could result from BLM actions over the life of the RMP are much less extensive. The estimated extent of ground disturbance stemming from projected future actions common to all alternatives over the next 20 years include:

- Range improvements—less than 10 acres (corrals, livestock watering facilities, fences)
- Associated road maintenance—880 acres (mostly limited to existing roads)
- Mineral extraction—5 acres
- Erosion-control measures—3,814 acres (in six areas over next 10 years) acres, but ground-disturbing actions would encompass only a fraction of this area

Under all alternatives:

- Inventory data indicate there is an average of 5 to 6 archaeological and historical sites per square mile on McGregor Range, although average densities range from about 2 to 11 sites per square mile in different environmental settings (refer to Table 3-10). The available inventory data indicate that there are more than 6,000 archaeological and historical sites on McGregor Range. The extent of ground disturbance associated with the projected activities common to all alternatives is likely to threaten only 10 to 30 sites, a very small fraction of the total number. Section 106 reviews are likely to result in avoiding or satisfactorily mitigating adverse effects on most, if not all, threatened sites determined to be National Register eligible.
- Projected fuels reduction and woodland management activities common to all alternatives would occur across more than 10,000 acres (15 square miles). Although 75 or more archaeological and historical sites could be present in those areas, most of the tree removal and thinning, meadow restoration, and prescribed fire activities have only limited potential to adversely affect most archaeological and historical sites. Prescribed burns would avoid any historic buildings that would be subject to burning.

4.2.12.5 Alternatives

4.2.12.5.1 No-Action Alternative

Under the No-Action Alternative the following primary program actions would be pursued in accordance with the 1990 RMPA decisions:

- Prepare a CRMP
- Fence the Escondida Site (40 acres) to exclude livestock grazing and other surface-disturbing uses
- Designate the Escondida Site closed to OHV use through a notice published in the *Federal Register*
- Continue to issue research permits for collection, recovery, and analysis of cultural resource data in coordination with Fort Bliss so as not to interfere with military use of the McGregor Range

[The 1990 RMPA also stated that BLM would plan and implement a 10 percent Class II cultural resource inventory. Although BLM has not done that, surveys sponsored by Fort Bliss have now inventoried almost half of McGregor Range, so that decision has been achieved.]

4.2.12.5.2 Alternative A

The current compliance component of the cultural resource program would continue Section 106 reviews under Alternatives A, B, and C. The balanced use strategy of Alternative A is likely to result in a level of compliance reviews comparable to the existing conditions (typically a few projects annually).

Other general management guidance common to Alternatives A, B, and C include:

- Instead of preparing a separate CRMP, BLM would participate in ongoing review and revision of the McGregor Range element of the Integrated CRMP prepared by Fort Bliss. BLM would be responsible for managing cultural resources for nonmilitary activities in accordance with the plan and the BLM Nationwide Programmatic Agreement, as well as its implementing New Mexico Protocol. Fort Bliss would have lead responsibilities for implementing the Integrated CRMPfor military undertakings.
- BLM and Fort Bliss would coordinate regular, periodic consultation, as well as project-specific consultations with tribes to promote better understanding of tribal concerns about traditional cultural resources on the withdrawn public land and how best to manage them.
- BLM would nominate the following six sites to the National Register including (1) Don Lee Ranch, (2) Turquoise Railroad Station, (3) Dos Manos Site, (4) McGregor Site, (5) Pendejo Cave, and (6) Pintada Rock Shelters.
- BLM would continue to work with the State Historic Preservation Office to incorporate BLM data (surveyed areas and recorded sites) into the New Mexico Cultural Resources Information System database and provide new information as it is compiled.
- BLM and Fort Bliss cooperatively would assign cultural resources to BLM cultural resource use categories as appropriate, and develop and maintain a resource listing to document use allocations.
- BLM and Fort Bliss cooperatively would program and conduct future inventories and other cultural resource studies in response to proposed undertakings. BLM also would cooperate with Fort Bliss in designing and implementing a survey plan to increase the sample size in sensitive areas under-represented by prior surveys.
- BLM would cooperate with Fort Bliss in patrolling and monitoring the condition of cultural sites in response to information about damage or deterioration. As necessary, physical protection measures (such as signing, fencing, and erosion control) would be implemented to protect significant resources.

In addition to this general management guidance, Alternative A includes special management measures for the Escondida Site. The site would be nominated to the National Register, approximately 220 acres around the ruin would be designated as an ACEC and closed to OHV use, except for the existing road that would be designated as limited use through the parcel. An activity plan would be prepared to protect the site.

4.2.12.5.3 Alternative B

The projected impacts of Alternative B are the same as Alternative A with two exceptions. First, because Alternative B provides for greater use of resources, the compliance element of the cultural resource program is likely to require more Section 106 project reviews. Although the potential for avoiding, reducing, or satisfactorily mitigating any identified adverse impacts of specific projects would be the same, the staff effort required for the reviews is likely to be greater than for Alternative A. The second exception is that Alternative B would involve less intensive management of the Escondida Site. The road through the ruin would be designated for limited use, and the ruin would be closed to OHV use, but the unimplemented decision to fence the ruin would be rescinded. The Escondida Site also would not be nominated to the National Register or designated as an ACEC.

4.2.12.5.4 Alternative C

The projected impacts of Alternative C are the same as Alternative A with two exceptions. First, because Alternative C emphasizes resource conservation, the compliance element of the cultural resource program may require fewer Section 106 reviews, and allow more staff efforts to focus on the primary purposes of the cultural resources program. Second, Alternative C would involve more intensive management of the Escondida Site, as well as four other high-value prehistoric sites and two historic sites.

As under Alternative A, the Escondida Site would be nominated to the National Register and designated as an ACEC, but under Alternative C the ruin also would be fenced and the road through the ruin would be rerouted as necessary. In addition, two other ACECs would be designated under Alternative C. The McGregor Historic ACEC would include a 11-acre parcel for the Don Lee Ranch and a 25-acre parcel for the Turquoise Railroad Station. The McGregor Prehistoric ACEC would include a 80-acre parcel for the McGregor Site, a 207-acre parcel for the Dos Manos Site, a 8-acre parcel for the Pendejo Cave, and a 41-acre parcel for the Pintada Rock Shelters.

4.2.13 Paleontological Resources

4.2.13.1 Resource Concerns

No concerns about paleontological resources were expressed during scoping. No management decisions specific to paleontological resources were identified in the 1990 RMPA other than ongoing adherence to general management guidance. The BLM interdisciplinary team identified the potential for paleontological resources but the lack of surveys of the area. Because McGregor Range has been withdrawn for military use for many years, very little is known about the paleontological resources in the rocks and sedimentary deposits. Many areas have not been explored or surveyed for paleontological resources.

4.2.13.2 Objectives

The objective of the paleontological resource program is to manage and protect the paleontological resources found on the withdrawn public land.

4.2.13.3 Assumptions

The management of paleontological resources is directed principally by FLPMA and NEPA, but other legislation also affords protection of paleontological resources (see Section 2.2.13). BLM also has developed policy regarding paleontological resources, and the BLM New Mexico State Office has a Cooperative Agreement with the New Mexico Museum of Natural History and Science and the New Mexico Museum of Natural History Foundation to ensure the care, protection, and storage of paleontological resources collected from public land in New Mexico. More detail on BLM guidance and the MOU are provided in Section 2.2.13. It is assumed that actions under all alternatives would comply with these management policies. It is also assumed that any paleontological resources discovered inadvertently or as a result of project-specific, ground-disturbing activities are to be managed according to the BLM guidelines and with the MOU with the New Mexico Museum of Natural History and Science.

4.2.13.4 Impacts Common to All Alternatives

Because very little is known about the paleontological resources in the rocks and sedimentary deposits on McGregor Range, identification of the potential fossils that may be found on the range are based on the rock types and known paleontological resources found in those formations in surrounding areas. The surface geology is indicative of a high potential for paleontological resources (O'Neil 2001). Many areas have not been explored or surveyed for paleontological resources.

Under all alternatives, adherence to the guidelines as set forth in the BLM's General Procedural Guidance for Paleontological Resource Management (BLM Manual H-8270-1) is expected to reduce or eliminate adverse impacts on paleontological resources from ongoing surface-disturbing activities. Unless otherwise indicated, no specific ground surveys for paleontological resources are required prior to activities on McGregor Range.

4.2.13.5 Alternatives

4.2.13.5.1 No-Action Alternative

No management decisions specific to paleontological resources were identified in the 1990 RMPA. Paleontological resources are subject to the general management guidance, and potential impacts and mitigation guidance discussed in Section 4.2.13.4 apply to this alternative.

4.2.13.5.2 Alternative A

No management decisions specific to paleontological resources were identified. Paleontological resources are subject to the general management guidance, which would include the evaluation of areas with known paleontological resources or a high potential for fossils that are important for scientific purposes, to ensure that those areas are adequately evaluated or have appropriate mitigation plans for any proposed actions or undertakings. Potential impacts associated with this alternative are the same as those for the No-Action Alternative.

4.2.13.5.3 Alternative B

No management decisions specific to paleontological resources were identified; management would be the same as described under Alternative A. Potential impacts associated with this alternative are the same as the No-Action Alternative.

4.2.13.5.4 Alternative C

No management decisions specific to paleontological resources were identified; management would be the same as described under Alternative A. Potential impacts associated with this alternative are the same as the No-Action Alternative.

4.2.14 Recreation

4.2.14.1 Resource Concerns

The most prominent recreation issues identified during scoping include the continuation of scheduled hunts as an allowable use on McGregor Range and mitigating damage to resources caused by OHV use. Overall, those providing comments were opposed to limiting public access to McGregor Range. The BLM interdisciplinary team also identified public access for hunting, hiking, and photography, as well as the need to clarify permitting requirements, as concerns. In response to these concerns, the alternatives address OHV use in accordance with Federal regulations, planning for recreation use areas, and public education.

4.2.14.2 Objectives

The objective of the recreation program is to ensure continued availability of outdoor recreation opportunities while maximizing public land health.

4.2.14.3 Assumptions

The establishment of access route designations as open, limited, or closed may affect access for recreation users, as some routes that were previously available for use may be designated as closed. Since the route designation process has not been completed, it is not clear what impact it may have on recreation uses or users. Planning for route designations is discussed in Section 4.2.2. The future designation of individual routes is distinct from the designation of OHV use areas, which are currently established.

The BLM is directed by Executive Order 11644 and 43 CFR 8340 to designate specific areas where OHV use is permitted or prohibited. OHV use areas have been identified throughout the alternatives, and an area may be designated as open, limited to existing or designated roads or trails, or closed to OHV use.

4.2.14.4 Impacts Common to All Alternatives

Under all alternatives:

- Access for recreation opportunities and OHV use are restricted based on compatibility with military training and safety considerations. In addition, any recreation activities on McGregor Range would continue to require permits.

- All alternatives limit OHV use to some extent—to existing or designated roads and trails unless an area specifically is closed. These decisions would result in restrictions on public access to public land, but would protect resources from potential impacts that may include the degradation of vegetation and visual resources; impacts on wildlife due to noise, activity, or degradation of habitat; or damage to cultural or paleontological resources.

4.2.14.5 Alternatives

4.2.14.5.1 No-Action Alternative

Under this alternative, recreation use would be monitored to determine if the management of recreation resources is responsive to public needs and demands. The lack of specific program guidance and education materials for recreation may result in changes to the recreation setting due to trailblazing or the informal establishment of use areas, spurring impacts on resources or safety concerns. The permitting process may limit these effects on an individual basis; however, a comprehensive and consistent approach to recreation uses would be lacking under the No-Action Alternative.

The Escondida Site (40 acres) would be closed to OHV use, and recreational vehicle use would be limited to existing roads and trails throughout McGregor Range. The limited OHV use designation would apply to 608,345 acres.

4.2.14.5.2 Alternative A

Under Alternative A, general management guidance would include the development of an educational program to inform the public about available recreation opportunities, terms and conditions, and authorized access. In addition, camp locations would be identified that are suitable in accordance with resource protection objectives and military activities. These actions would be beneficial in terms of enhancing public recreation opportunities while minimizing safety concerns.

In coordination with Fort Bliss, the BLM would identify areas suitable for recreation opportunities and develop terms and conditions for each use. The identification of consistent recreation opportunities would improve the ability to manage effectively for these uses. Since areas generally would be identified as suitable based on established use patterns (such as established campsites and hiking trails), minimal impacts to recreation setting are anticipated from this alternative due to the general continuation of existing uses. However, some recreation users may be affected if some areas do not include previously allowable activities.

The Escondida Site would be closed to OHV use, and OHV use would be limited to existing roads and trails throughout McGregor Range, similar to the No-Action Alternative. Under Alternative A, the existing ACECs (Black Grama Grassland and Escondida Site) also would be closed to OHV use. The total acreage closed to OHV use under this alternative is approximately 3,936 acres.

4.2.14.5.3 Alternative B

The management and potential impacts associated with Alternative B are the same as Alternative A, with the exception that only the Escondida Site would be closed to OHV use (similar to the No-Action Alternative). OHV use would be limited to existing roads and trails elsewhere on McGregor Range.

4.2.14.5.4 Alternative C

Under Alternative C, recreation would not be permitted on McGregor Range, altering the existing recreation setting and opportunities. No public education program, camp location establishment, or other recreation planning would occur. A blanket restriction on recreation in areas deemed safe for public access may hinder BLM's ability to meet the FLPMA multiple-use mandate.

OHV use generally would continue to be limited to designated roads: New Mexico Highway 506 and county roads on McGregor Range. Acreage that would be closed to OHV use would increase relative to all other alternatives, to include all areas closed in Alternative A, as well as WSAs and military impact areas, or a total of approximately 57,256 acres.

4.2.15 Visual Resources

4.2.15.1 Resource Concerns

Although no specific issues related to visual resources were identified by the public during scoping, the BLM interdisciplinary team indicated that current VRM classifications should be reviewed to ensure they remain appropriate.

4.2.15.2 Objectives

The primary objective with regard to visual resources is to manage to protect the quality of scenic values.

4.2.15.3 Assumptions

The impact assessment for visual resources uses the BLM VRM classification system, which defines the acceptable limits of change to a visual setting. Potential impacts are assessed based on changes that may occur in the VRM classification for an area, using the following criteria:

- Within Class II landscapes, any changes to scenic quality due to management activities should not be evident.
- Within Class III landscapes, changes to basic elements of the landscape may be evident but should be subordinate to the existing scenic quality.
- Within Class IV landscapes, the level of change to the characteristic landscape may be high.

It is assumed that the other resource objectives would support the VRM class objectives.

4.2.15.4 Impacts Common to All Alternatives

Under all alternatives:

- Current VRM classes are maintained, ensuring greater protection of the more sensitive and unique resources included in Class II and, to a lesser extent, Class III areas.
- Prescribed burns would occur under all alternatives, resulting in short-term impacts to visual resources resulting from smoke and scorching. Impacts from smoke would be mitigated under the terms of the smoke management MOU (see Section 4.2.10.4) and other visual impacts would be of short duration as areas revegetate.

4.2.15.5 Alternatives

4.2.15.5.1 No-Action Alternative

Under current management, existing VRM classes would be maintained. Therefore, existing scenic quality would be preserved within Class II areas (the WSAs), and Class III areas (along U.S. Highway 54 and New Mexico Highway 506) would maintain existing quality while allowing for greater landscape change. The remainder of McGregor Range is Class IV, and the allowable change to the landscape is high.

Higher quality and more sensitive areas (i.e., Class II and III areas) would be managed to minimize change to visual resource conditions, although changes to visual conditions could occur throughout the majority of the Planning Area. However, due to the lower scenic quality and large acreage associated with Class IV in the Planning Area, the overall effect on visual resources is anticipated to be low.

4.2.15.5.2 Alternative A

Under Alternative A, management under current VRM classes and potential impacts are the same as the No-Action Alternative, with several exceptions. The exclusion areas and restriction of above-ground linear facilities to designated corridors would limit proliferation of utilities throughout McGregor Range, thereby minimizing visual impacts. The establishment of an ACEC on 220 acres around the Escondida Site would promote protective measures that would indirectly maintain or enhance scenic quality in this area.

4.2.15.5.3 Alternative B

Under Alternative B, management under current VRM classes and potential impacts are the same as the No-Action Alternative, with the exception that utility corridors would limit the proliferation of linear facilities throughout the Planning Area, thereby minimizing visual impacts.

4.2.15.5.4 *Alternative C*

Under Alternative C, management under current VRM classes and potential impacts are the same as the No-Action Alternative, with the exception that the designation of new ACECs would promote protective measures that indirectly would maintain or enhance scenic quality in these areas. No additional utilities would be permitted under Alternative C, further reducing the potential for visual impacts relative to other alternatives.

4.2.16 Special Management Areas

4.2.16.1 Resource Concerns

During scoping, it was suggested that identification and survey for new WSAs and ACECs occur, and concern was expressed for the protection of grassland via the Black Grama Grassland ACEC and continued management of the Culp Canyon WSA. The BLM interdisciplinary team raised issues related to the management of special management areas, including grassland habitat fragmentation and the need to address species that have been elevated in concern since the 1990 RMP. In response to these concerns, the alternatives evaluate the Black Grama Grassland ACEC designation and opportunities for new ACECs.

4.2.16.2 Objectives

BLM's objective for WSAs is to comply with the Interim Management Policy and Guidelines until a WSA is designated as wilderness by Congress or released from consideration. ACECs are created to protect resource values that meet established relevance and importance criteria, in accordance with BLM Manual 1613 and 43 CFR 1610.7-2.

4.2.16.3 Assumptions

The Culp Canyon and portions of the Sacramento Escarpment WSAs that are within the Decision Area will continue to be managed under the wilderness review provisions of Section 603 of FLPMA, as mandated by the land withdrawal. These provisions require that the WSAs be managed in such a way as to not impair wilderness values.

The designation and management of ACECs are guided by specific resource concerns and, therefore, potential impacts associated with existing and proposed ACECs are addressed in the cultural resources (Section 4.2.12) and vegetation (Section 4.2.6) sections and noted below.

4.2.16.4 Impacts Common to All Alternatives

Under all alternatives, the establishment of an ACEC typically would provide specific protection for a resource of concern. An activity plan, HMP, or other guidance would be developed to address potential impacts on the resource, mitigation, and other implementation decisions, and generally to provide beneficial effects on the resource. Potential impacts may include limitations on access or uses within the ACEC, depending on the management prescribed.

4.2.16.5 Alternatives

4.2.16.5.1 *No-Action Alternative*

Under current management, the existing WSAs and Black Grama ACEC would be maintained. The ACEC provides for protection, monitoring, and research of black grama grassland. There would be no impacts to the boundaries or management of these special management areas. Potential impacts on the resources that these areas are being managed for (vegetation, wildlife habitat, visual resources) also are expected to be minimal, but may include the re-evaluation of HMPs or programs inadequate to control noxious weeds.

4.2.16.5.2 *Alternative A*

Under Alternative A, the boundaries and management of special management areas would be the same as the No-Action Alternative, with the addition of the designation of a new ACEC encompassing approximately 220 acres around the Escondida Site. Beneficial effects, in terms of cultural resource protection, would be expected to result from the creation of the new ACEC due to the closure to OHV use and protective measures that would be developed as part of the activity plan.

4.2.16.5.3 Alternative B

Under Alterative B, the Black Grama ACEC would be eliminated, resulting in long-term alteration of the vegetation and wildlife habitat within the ACEC as a result of the loss of protective measures.

4.2.16.5.4 Alternative C

Under Alternative C, the boundaries and management of special management areas would be the same as under Alternative A, with the addition of the designations of two new ACECs. The proposed McGregor Historic ACEC would include approximately 35 acres of historic sites, and the proposed McGregor Range Prehistoric ACEC would encompass approximately 340 acres of cultural and geologic sites and features. Beneficial effects would include cultural resource protection due to more intensive management of the Escondida Site and protective measures that would be developed for the management of the new ACECs.

4.2.17 Social and Economic Conditions

4.2.17.1 Resource Concerns

Almost all resource concerns identified by the public and/or the BLM interdisciplinary team relate to social and/or economic concerns in some manner. Primarily economic-related concerns identified by the public during scoping relate to the potential for oil and gas leasing, fire management (fire fighting and restoration expenses), and livestock grazing. Primary social concerns identified by the public during scoping related to the values of recreation, hunting, livestock grazing and the associated ranching lifestyle, military presence and the value of the military, and adequate access to archaeological sites present on McGregor Range.

The BLM interdisciplinary team's concerns with ties to economic and/or social issues include vegetative sales, recreation access, clarification of permitting requirements, access and public safety issues to the public, designation of corridors, potential development of renewable energy resources (solar and wind), specific issues related to administration of the livestock grazing program (i.e., construction of range improvements, ADC, and clarification of the contract administration process), and protection of the Escondida Site. The values associated with the identified social and/or economic concerns included both active on-site use values (e.g., use of McGregor lands today for military purposes, livestock grazing, and recreation) and passive use values (e.g., value of ranching lifestyle, the military presence, remote and isolated qualities; scenic and habitat features; and opportunities for hunting).

4.2.17.2 Objectives

No objective was established specific to social and economic conditions as BLM does not manage for social and economic conditions, per se. However, the objectives in other resource areas are integrated with social and economic values, particularly lands and realty (see Section 4.2.1.2), transportation and access (see Section 4.2.2.2), mineral and energy resource (see Section 4.2.3.2), vegetation (see Section 4.2.6.2), fire management (see Section 4.2.10.2), livestock grazing (see Section 4.2.9.2), and cultural resources (see Section 4.2.12.2).

4.2.17.3 Assumptions

The social and economic impact of the alternatives are measured in terms of the current contribution of BLM's management of nonmilitary uses of McGregor Range relative to the social and economic environment of the McGregor Range region (i.e., social and economic study area, see Section 3.21.1).

Social impacts include the consequences to human populations that alter the ways in which people live, work, play, relate to one another, organize to meet their needs, and generally cope as members of society. The term also includes cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society (Interorganizational Committee on Principles and Guidelines 2003).

Key economic impact variables include employment, income, economic dependency, and market and nonmarket economic value of resources to users within the social and economic study area and at the regional and national levels.

Key social impact variables include population change, community and institutional structures, political and social resources, community and family changes, and community resources.

4.2.17.4 Impacts Common to All Alternatives

Many of the impacts noted as common to all alternatives are related to the requirements of PL 106-65. In the strictest interpretation, these impacts would be tied solely to the action taken by Congress when passing this law that renewed the McGregor Range land withdrawal and enacted associated conditions for future use and management of the range. However, this RMPA in many ways is a mechanism for the implementation of the law in that it establishes policy that is inextricably linked to PL 106-65. These impacts are noted here in this context.

4.2.17.4.1 Lands and Realty

Under all alternatives, the disposal of withdrawn public land through sales, transactions under the Recreation and Public Purposes Act, and exchange is not allowed on McGregor Range per PL 106-65. Consequently, none of the alternatives would result in significant changes in Federal surface ownership in the Planning Area and there will be no change payments to Otero County under the Payment in Lieu of Taxes program. Also, per PL 106-65, concurrence of the Secretary of the Army would be required before BLM issues any lease, easement, right-of-way, or other authorization for nonmilitary use. This could have economic impacts in that a proponent of such an action may be prohibited due to incompatibilities and/or, through the review, approval, and concurrence process, may have to select a less desirable and/or more expensive location, routing, or design/build process and may incur additional expense or delays in order to gain concurrence from the Secretary of the Army. However, this impact must be viewed in context of the economic impact of the military mission, and how any action that would impede or degrade the U.S. Army's ability to meet their mission requirements would have the potential for economic impacts, which has the potential to be of greater magnitude than the economic impact of the nonmilitary use (lease, easement, right-of-way, or other authorization).

4.2.17.4.2 Transportation and Access

Under all alternatives, the Secretary of the Army would continue to have authority to close withdrawn lands, roads, or trails from public use to ensure public safety, military operations, or national security. Because closures would be limited to the minimum of areas and periods that the Secretary determines necessary, appropriate warning would be posted, and appropriate steps would be taken to notify the public; the economic impact would be minimal and the social impact would be more notable. The greatest example of this is the occasional closure of Highway 506 (which currently occurs and would be expected to occur under any alternative). Highway 506 provides access to Timberon and Piñon, New Mexico, and to Dell City, Texas, as well as between Highway 54 and the communities and ranches east of McGregor Range. This occasional closure, which typically occurs in six-to-nine-hour increments during mostly daylight hours (U.S. Army 2000a), is inconvenient for rural residents; however, alternate access routes exist and helicopter services are available for emergencies (U.S. Army 1999). Other access and transportation closures that could occur would be expected to have a lesser magnitude than the Highway 506 closures due to the relative use of this highway for access and transportation

The general management guidance to issue access permits and provide additional information and educational materials would be implemented under any alternative. This would have positive social impacts on resource users in that it would likely promote public understanding of how the range is managed and the visitor's role in authorized use of the range.

4.2.17.4.3 Mineral and Energy Resources

The conditions of PL 106-65, as described in Section 2.2, would apply under all alternatives. Thus, McGregor Range will remain withdrawn from use under the mining laws, mineral leasing, and geothermal leasing laws. The economic impacts of the closure are not possible to quantify because the minerals are not lost from extraction or use in the future although they may be precluded from immediate use. Economic impacts depend on the extent and value of the mineral resource precluded from development in the near future. The extent and value of many of the mineral resources is unknown; only the potential for occurrence has been identified. Of note, the discovery of gas in the Otero Mesa area, located east of McGregor Range, has prompted new exploratory interest for fluid mineral leasing in the area, including on McGregor Range. Actual economic value would be based on the type of commodity, the quality of the deposit (the amount of the resource that could be extracted), the value of the resource commodity, cost of development, and other factors. There is low or low-to-moderate potential of locatable minerals occurring on various portions of McGregor Range; a low potential of occurrence of salables; low-to-moderate potential for leasable minerals; and a high potential for geothermal resources on portions of McGregor Range (refer to Section 3.6.2, Mineral and Energy Resources).

In accordance with PL 106-65, at least every 5 years BLM will compile expressions of interest and information related to leasable and locatable mineral activities and review new information to determine whether an amendment is needed. Thus, economic opportunity and social ties to development of these minerals could potentially occur in the future, although the possibility is remote given the nature of the military mission of Fort Bliss.

Also per PL 106-65, McGregor Range would continue to be closed to the general public for extraction of salable minerals; however, the Department of Army (Fort Bliss) would continue to extract the material as needed to support construction needs on McGregor Range. The RFFA for mineral resources is estimated to include one mineral material extraction action every other year, disturbing 0.5 acre per action. For State and county roads on McGregor Range, BLM would consider applications from State or county entities, or their contractors, to extract minerals from McGregor Range for use on these State and county roads. The amount of material projected to be removed is not expected to be of economic significance and the material is commonly found and of low economic value.

Regardless of the alternative selected and implemented, development of large-scale renewable (solar or wind) energy projects on the range seems unlikely in the near future. The economic viability of such projects and the compatibility with military operations would need to be evaluated and approved before any projects were developed. Such projects seem unlikely at this time and as with mineral resources, the renewable energy impacts are based primarily on economics that are difficult to measure except for project specific actions.

4.2.17.4.4 Livestock Grazing

The continuing management guidance to follow the Standards and Guides applies equally across all alternatives. The economic and social consequences of the implementation of this policy in New Mexico was analyzed at the statewide level in the Statewide RMP Amendment/Final EIS addressing New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (BLM 2000b).

As stated previously, the grazing units on McGregor Range are currently being evaluated to determine if the standards are being met. If it is determined that the standards are not being met, the livestock grazing guidelines or other appropriate actions will be implemented. Implementation of grazing guidelines could call for a decrease in the number of AUMs, or could lead to an increase or decrease in rangeland improvements and land treatments. These effects could have the effect of decreasing lease rates established by the competitive bidding process, as well as property values and associated taxes. Less income from grazing contracts translates into less funding available to support BLM's administration of the grazing program, including range improvements. However, these potential impacts must be viewed in context of the overall trend in increasing lease rates, which have increased approximately four-fold over the last decade (BLM 2001f), as well as trends in increasing property values. They also should be viewed in context of economic dependency;

agriculture is a small factor in Otero County's economy. The total number of cattle authorized on 2000-2001 McGregor Range leases (BLM 2001f) is about 12 percent of the total reported 23,000 head of cattle and calves on farms and ranches in Otero County (USDA 2000).

The social impacts of livestock grazing are more wide-reaching, particularly in context of families, rural communities, retention of open space rangelands, and rural attitudes, values, and beliefs.

4.2.17.4.5 __Cultural Resources__

Under all alternatives, there would be a relatively minor amount of ground disturbance with the potential to impact cultural resource sites and Section 106 reviews are expected to result in avoiding or mitigating most if not all, sites determined to be National Register eligible (see Section 4.2.12.4). Disturbance to cultural and historic resource sites, whether eligible for the National Register or not, has the potential for adverse social impacts on individuals and groups that value those resources (i.e., through affinities in custom and culture). With regard to site-specific impacts, there is a greater potential for impacts on local individuals and groups (including Tribal groups) with potential affinity to the resources versus regional or national groups. However, in context of the level of expected resource impacts and the key social impact variables identified in Section 4.2.17.3, the social impacts related to cultural resource impacts are not expected to be substantial.

4.2.17.4.6 __Other__

Under all alternatives, economic diversity in the study area would remain unchanged. Economic shifts would be influenced primarily by factors beyond the reasonably foreseeable impact of the actions of this RMPA. Public infrastructure and services would not be affected by any alternatives (i.e., demand for services and infrastructure would not change). However, some lands and realty and transportation and access alternatives would have the potential to affect road and utility development.

Area income generated by BLM operational and personnel employment and expenditures may remain similar to current contributions, or increase slightly, across all alternatives, although it is possible that some employment, related to recreation and grazing programs, would be affected under Alternative C. The BLM's operational and labor budgets for management of the natural and cultural resources of McGregor Range are determined by the overall USDI, Legislative, and Executive funding processes and priorities.

None of the alternatives are expected to appreciably impact the nonmarket passive use value of the McGregor Range for recreation, open space, natural and cultural resources, or as a critical part of military operational readiness for national defense. McGregor Range would remain similar in character as an area that is used primarily for military purposes with some compatible nonmilitary uses.

Public attitudes and values generally support management actions that are protective of natural and cultural resources on McGregor Range, but are divergent when management actions result in reductions or limitations in public access and use (see Section 3.2.1.8). Management actions aimed at protection, conservation, or preservation of natural and cultural resources likely would be viewed as positive by most potentially affected individuals, groups, or organizations. However, when such actions result in reduced access or opportunity for those individuals, groups, or organizations that use McGregor Range there may be some who view this as negative.

4.2.17.4.7 __Environmental Justice__

During the course of this analysis, no alternative considered resulted in identifiable effects or issues specific to any minority or low-income population or community as defined in Executive Order 12898. While there are some environmental justice communities within the socioeconomic study area, including La Luz (minority), Mescalero Apache Indian Reservation (minority and low-income), Las Cruces (minority and low-income), and El Paso (minority) (see Section 3.21.4), no particular BLM actions proposed in any of the alternatives have been identified as having potential to cause disproportionate adverse effects on these populations. The BLM has solicited and considered input from these minority and/or low-income populations and has considered all input from persons or groups in the planning process regardless of race, income status, or other social and/or economic characteristic.

4.2.17.5 Alternatives

4.2.17.5.1 No-Action Alternative

- Lands and Realty: Under the No-Action Alternative, economic activity associated with current nonmilitary land use authorizations—including leases, permits, and rights-of-way—is not expected to change. The continued evaluation of rights-of-way proposals on a case-by-case basis would not be expected to affect demand or influence the number or types of rights-of-way authorized by BLM with concurrence of the Secretary of the Army.
- Mineral and Energy Resources: Under the No-Action Alternative, the impacts to social or economic conditions related to mineral and energy resources would not differ from those common to all alternatives.
- Vegetative Sales: Under the No-Action Alternative, the sale of vegetation—including yucca, cacti, and ornamentals—would occur within the existing delineated 25,858-acre vegetative sales areas (as calculated in geographic information system [GIS]). The BLM currently collects a minimal amount from the sale of vegetation and this would be expected to continue. Individuals or groups that currently take advantage of the vegetative sale areas would be unaffected. Limitations on types and amounts of plants and the presumed low profit-margin between the fee paid to BLM and the market price for plants in context of the volume of sales likely would preclude any large-scale commercial activity from occurring under this policy.
- Livestock Grazing: Under the No-Action Alternative, economic and social impacts associated with livestock grazing would remain consistent with those of existing management, including the application of the Standards and Guides, as common to all alternatives.
- Recreation and Transportation and Access: Under the No-Action Alternative, recreation management and access would be unchanged from that described as the existing conditions. Opportunities for recreation activities (including hunting and OHV use) would continue to be restricted based on compatibility with military training and safety considerations and would continue to require access permits. These conditions for recreation use of McGregor Range may have the effect of reducing the level of recreation and associated economic and social attachments that may otherwise occur if it were not precluded by military use given the recreation setting offered in those areas of McGregor Range that have not been used intensively for military purposes. The continued access for recreation would have minor positive economic effects from the expenditures of recreation participants and the nonmarket value of the area for the recreation experience that is offered. The social value of continued recreation access is varied and includes the Range's contribution to the quality of varied resource-dependent recreation experience and sense of place in the area.

The continued closure of the Escondida Site to OHV use likely would have favorable social impacts because nearly all recreation users acquiesce to motorized access closures when they are of a small scale and for specific resource protection purposes. Additional social impacts could result from the lack of a defined recreation management program, increasing potential that impacts on the recreation setting would continue to occur as they have under current management. These could include unauthorized route proliferation, which that would be expected to continue without a change in transportation management. Resultant impacts could affect factors such as quality of recreation experience, conflict among users, disruptions to sense of place, or changes in areas frequented by individuals, families, or social groups.

4.2.17.5.2 Alternative A

- Lands and Realty: The social and economic consequences of Alternative A on lands and realty would differ minimally from those of the No-Action Alternative. By establishing rights-of-way exclusion areas and corridors for utility development, there would be a greater potential that some linear and site developments may be denied based on location alone. However, the establishment of one north-south corridor and one east-west corridor for utility development may streamline the review-and-approval process and, consequently, result in less expense for the BLM and action proponent.
- Mineral and Energy Resources: The impacts related to the social and economic aspects of mineral and energy development for Alternative A would differ from the No-Action Alternative. The potential for BLM to allow State or county entities, or their contractors, to extract minerals from McGregor Range (for use on McGregor Range State and county roads) may be of financial benefit to local governments and retain related work and spending in the vicinity of McGregor Range. Because this alternative also would not allow the consideration of applications for development of wind and solar energy, it would not allow for the remote potential for social and economic activity related to such use should a proponent identify a project that could occur under the No-Action Alternative as long as it were compatible with the military mission.
- Vegetative Sales: Under Alternative A, the area available for vegetative sales (ornamental and landscaping plants) would be reduced by 6,283 acres or 24 percent through the exclusion of Centennial Range. Furthermore, there is a potential that limitations or restrictions on vegetation and seed collection could occur because this alternative includes a provision to identify conditions for such removal. These changes could result in minor socioeconomic impacts for those individuals, groups, or organizations that currently participate or would potentially participate in the vegetative sales program in the future.
- Livestock Grazing: The social and economic conditions related to the Alternative A for livestock grazing are not expected to differ from those described under the No-Action Alternative, except that there may be a slight economic benefit from the adjustment of the season of use, which may allow for increased AUMs as long as the BLM can meet the Standards and Guides.
- Recreation and Transportation and Access: Alternative A is unlikely to result in economic impacts on recreation that differ from those described under the No-Action Alternative. There could be improved social impacts in that the recreation management actions would reduce conflicts among users, reduce user impacts, and thereby improve the recreation experience. These include the development and implementation of individual route designations. The management actions under this alternative are not expected to have impacts on sense of place or use areas for individuals, families, or social groups since the determination of suitability would be based on established use patterns. There could be some sense-of-place impacts resulting from loss of motorized access from route closures; however, as closures would focus on redundant routes, alternative means of motorized access may be retained.

Implementing OHV closures in ACECs in addition to the Escondida Site would have mixed social effects. Road closures may be viewed positively by those valuing preservation of natural and cultural resource recreation, but viewed negatively by recreation users seeking motorized recreation, particularly if such use is associated with sense of place.

4.2.17.5.3 Alternative B

- Lands and Realty: Potential social and economic impacts from Alternative B on lands and realty actions differ from the No-Action Alternative in that there would be two north-south and one east-west utility corridors. As with Alternative A, establishing utility corridors has the potential to streamline the review and approval process and could be associated with minimal cost savings to BLM and the project proponent. Also as compared to Alternative A, this alternative provides increased flexibility because an additional north-south corridor would be established.

- Mineral and Energy Resources: The impacts related to the social and economic aspects of mineral and energy development under Alternative B would be similar to those described in Section 4.2.17.4.2.
- Vegetative Sales: Under Alternative B, there likely would be minor positive socioeconomic impacts from the proposed changes in vegetative sales policy. While the area that would be available for vegetative sales would increase by 179,943 acres or to about 7 times the current vegetative sales area, conditions for plant removal also would be identified. This could allow for a greater variety and possibly greater volume of vegetative sales, but also would provide measures for protection of vegetative resources through the limitations or restrictions that could be imposed in the conditions for their removal.
- Livestock Grazing: The social and economic impacts of livestock grazing actions under Alternative B would be the same as described for Alternative A.
- Recreation and Transportation and Access: The social and economic impacts related to Alternative B for recreation would be the same as those described for Alternative A, with two exceptions: (1) OHV use within ACECs would be limited to existing roads and trails with social impacts similar to those described for the No-Action Alternative, and (2) the route designation would focus on maintaining open public access and establishing new roads to facilitate recreational opportunities. The latter of these likely would have positive social impacts, particularly for those who value motorized forms of recreation.

4.2.17.5.4 Alternative C

- Lands and Realty: Potential social and economic impacts from Alternative C differ from the No-Action Alternative in the reduced flexibility it offers for locating linear and site facilities, as this alternative would establish both right-of-way exclusion areas and avoidance areas. This alternative stipulates that no additional utility rights-of-way would be permitted, which has the potential for adverse impacts on utilities and the customers they serve should a need for new linear or site-specific facilities arise.
- Mineral and Energy Resources: The social and economic impacts of mineral and energy resource development under Alternative C would be similar to those described in Section 4.2.17.4.2. The only difference would be that wind and solar energy development would not be allowed in exclusion areas and this could discourage development in nonexclusion areas on McGregor Range.
- Vegetative Sales: With Alternative C, the vegetative sales area and associated social and economic activities would be eliminated on the McGregor Range. These activities may be displaced to other areas or cease to exist in a similar form in the local area. This would have minor negative impacts on those that currently use the vegetative sales program.
- Livestock Grazing: The discontinuation of livestock grazing on McGregor Range would have negative economic and social impacts. The current social and economic activity associated with the livestock-grazing program on McGregor Range (see Section 3.21.7.3) would cease to exist. There likely would be limited opportunities for ranching activities to be absorbed elsewhere in the area, particularly given the nature of the existing range facilities and conditions on McGregor Range and the pressure on rangelands in the region from the drought conditions. Livestock-grazing activity

currently associated with out-of-state contractors on McGregor Range may be more likely to be displaced outside of the local area. The displacement of livestock grazing that is more locally based may potentially result in increased grazing pressure on other rangelands in the area, which may be unable to accommodate any increase in use due to rangeland and drought conditions.

- Recreation and Transportation and Access: Alternative C has the potential to negatively impact social and economic conditions related to recreation use of McGregor Range because this alternative would no longer allow recreation use of the range. In addition, the route designations likely would restrict public access to McGregor Range. Those that currently use McGregor Range for recreation likely would be displaced to other areas in the region that offer similar recreation opportunities. These other areas for recreation in the region would have the capacity to absorb the limited volume of current recreation use on the McGregor Range. Recreation-related expenditures probably would be retained within the region, but there could be some groups, communities, or businesses that are negatively impacted locally (e.g., Fort Bliss, sundry retailers near access points to McGregor Range). Nonmarket values associated with recreation use also would be impacted, but nonmarket values associated with open space would not be affected. Social impacts would be most pronounced in the loss of recreation experience unique to the McGregor Range setting. Sense-of-place attachments to such sites for individuals, families, and social groups would be impacted because the specific sites and areas that are valued could no longer be visited and would be retained only in remembrance.

4.2.18 Unexploded Ordnance

4.2.18.1 Resource Concerns

During scoping, BLM was asked to specify in the RMPA/EIS the responsibility of the Department of Defense regarding unexploded ordnance (UXO) on McGregor Range. It also was suggested that agreements be reached with the U.S. Army to identify clean-up responsibilities. Because management of this issue is the responsibility of the U.S. Army, BLM has no jurisdiction over UXO clean-up activities. However, the U.S. Army has protocol in place to control the risk associated with public exposure to UXO. As mentioned in section 3.22, there is no general public access to Training Areas (TAs) 24 through 32 where the majority of UXO is located. Only a relatively small amount of UXO is known to be located in the areas where the public has access. In the ordnance and explosive investigation conducted on McGregor Range, it was determined that fewer than one accidental detonation would be expected to occur within a 20-year period under current conditions, assuming no UXO removal. However, the policy of the U.S. Army is that prior to proposed surface-disturbing activities in the area where UXO is known to exist (during installation of utility rights-of-way and oil and gas exploration, for example), the area of proposed surface disturbance should undergo a UXO clearance.

4.2.18.2 Objectives

The UXO program is under the jurisdiction of the U.S. Army. As such, BLM does not have an objective for the program except that BLM will coordinate with the U.S. Army before ground-disturbing activities occur to ensure that all U.S. Army procedures regarding UXO (e.g., clearance) have been accomplished prior to beginning work.

4.2.18.3 Assumptions

It is assumed that entrance to those areas on the McGregor Range where inherent UXO dangers exist would continue to be restricted. It also is assumed that all applicable policies and procedures for maintenance of areas where the public has access would be followed and any UXO identified would be cleared and disposed of according to applicable regulations. These assumptions would be consistent for all alternatives.

4.2.18.4 Impacts Common to All Alternatives

Access to McGregor Range is necessarily limited by the priority given to the military mission and associated risks including encountering UXO. Under all alternatives:

- Public access would be limited to specific areas of the range.
- The U.S. Army would conduct UXO clearance on an as-needed basis in the event of BLM ground-disturbing activities.

4.2.18.5 Alternatives

4.2.18.5.1 No-Action Alternative

Under the No-Action Alternative, no changes would be made to the BLM's current policies and procedures with regard to UXO. Public access would continue to be restricted to those areas of risk where UXO is not commonly found. The BLM would notify the U.S. Army if and when UXO is found so that necessary clean-up could be accomplished. In the event of ground-disturbing activities conducted by the BLM or other entities, BLM would request a clearance of the area to be disturbed prior to initiation of the work.

4.2.18.5.2 Alternative A

Under Alternative A, general policies and procedures regarding access to restricted areas would continue. With the designation of two additional utility corridors, UXO clearance activities would be necessary in the affected areas. This also would be the case for any new roads established, maintenance activities conducted, or any other ground-disturbing activity. Mining of saleable minerals and construction of facilities (such as the RFFAs) would create ground disturbance, making UXO clearance activities necessary. Prescribed fire burns have been known to set off UXO, so clearance and/or clean-up activities would occur prior to burns. Designation of additional grazing areas and other vegetation uses likely would increase the occurrence of ground disturbance and the potential for encountering UXO. Cultural and paleontological artifacts would be at a greater risk with the increase in ground-disturbing activities.

Additional educational materials would be developed in coordination with Fort Bliss to provide information to the public explaining the presence of UXO on McGregor Range, including how to recognize UXO, dangers associated with UXO, and associated safety procedures to avoid UXO.

4.2.18.5.3 Alternative B

The management and impacts associated with Alternative B would place a greater emphasis on resource production and use, allowing for more development. As such, additional utility corridors would be established, requiring additional UXO clearance activities on affected lands. This also would be the case for the additional maintenance of areas and routes for public access and the establishment of new roads for public access to land for recreation, research, and other authorized uses on McGregor Range. OHV use would be limited to established roads, however, reducing the exposure of the public to contact with UXO.

4.2.18.5.4 Alternative C

Under Alternative C, a greater emphasis would be placed on resource protection, limiting public access, and reducing the possibility of individuals encountering or disturbing UXO. Fewer roads would be established and some of those that are already established would be closed, also reducing the public interface with UXO. Under this alternative, no public recreation would be allowed on McGregor Range, eliminating the need for public education concerning UXO.

4.3 CUMULATIVE EFFECTS

Regulations prepared by the Council on Environmental Quality for implementing NEPA require Federal agencies to analyze and disclose effects that result from incremental impact of an action "when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal of non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

Major past, present, and future actions in BLM's Decision Area are described briefly in Section 4.3.1.

4.3.1 Major Actions

4.3.1.1 Past Actions

Prior to the establishment of McGregor Range, ranching that dates to the 1880s occurred in the Planning Area. Although some ranches were acquired by the Federal government for military use beginning in the 1940s, ranching activities occurred throughout the area prior to the withdrawal.

Military activities began in the late 1940s when lands were needed to support military missile-testing activities in conjunction with nearby Fort Bliss and White Sands Missile Range. At that time, the U.S. Army leased lands from local ranchers for the exclusive use of the military. When the leases expired in 1954, the privately owned lands were purchased by the military and, in 1957, public land administered by the BLM was withdrawn from the public domain for use by the military for a period of 10 years (Public Land Order 1470).

Then in 1986, the land now constituting McGregor Range was withdrawn from the public domain for military use for a period of 15 years by the Military Lands Withdrawal Act of 1986 (PL 99-606). This withdrawal expired in 2001 and was renewed in accordance with the National Defense Authorization Act for Fiscal Year 2000 (PL 106-65). Coordination on management activities between BLM and the U.S. Army is documented in this EIS throughout the discussion of continuing management and the affected environment.

4.3.1.2 Present Actions

As discussed in Chapter 3, implementation of the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (Standards and Guides), is ongoing on McGregor Range.

Typical military activities on McGregor Range include aircraft operations, dismounted training, and on- and off-road vehicle maneuvers to support troop and equipment training, air defense and air-to-ground training, and ground-maneuver training. More detail on the type and location of military activities is provided in Section 3.4.2.1. Mission activities are dynamic and may change in response to the needs and priorities of the U.S. Army.

Livestock grazing occurs within the Planning Area including on lands owned by the U.S. Army (on which grazing is managed by BLM).

Recreation occurs in some parts of McGregor Range on a permitted basis and may include hunting, picnicking, bird watching, and observing nature.

4.3.1.3 Reasonably Foreseeable Future Actions

The BLM New Mexico State Office has prepared a Fire and Fuels Management Plan Amendment that amends nine RMPs in eight BLM field offices in New Mexico including the Las Cruces Field Office White Sands RMP and RMPA for McGregor Range. The Fire and Fuels Management Plan Amendment, when completed, will establish Statewide objectives for fire and fuels management, delineate fire management units and fire management categories, identify broad vegetation treatments, identify general restrictions on fire management practices, and determine the criteria for changing fire management units. The Proposed RMPA/EA was released in June 2004 (BLM 2004), and the Finding of No Significant Impact was signed on July 2, 2004.

Within the Planning Area, the Proposed RMPA/EA identifies several fire management units (FMUs): (1) the Timberon FMU (827 acres) is Category A, where fire would be suppressed aggressively and fuel hazard reduction activities would be a priority but prescribed burns would be prohibited; (2) the Sacramento Escarpment WSA/ACEC (4,864 acres) is associated with Category B, maintaining a focus on fire suppression but allowing the use of prescribed burns, as well as other methods of fuel reduction; and (3) the McGregor Range FMU (362,009 acres) is Category D, where wildland fire is desired, least-cost suppression tactics would be used, and wildland fire use to achieve resource management goals could occur under prescribed conditions. The McGregor Range FMU is located in the southern portion of the Planning Area. Other potential future actions identified in the

Proposed RMPA/EA include the implementation of vegetation treatment BMPs, public education, and monitoring and adaptive management.

Mission activities on McGregor Range are dynamic and likely to shift over the planning timeframe. Although not all changes can be anticipated, potential future actions that may be initiated by Ft. Bliss include:

- The addition of controlled-access, field-training exercise sites. Each site would require approximately 1 to several square miles located in nonmountainous terrain. The Training Area Development Concept (TADC) Future Development Concept indicates that the training category in Training Area (TA) 16 would change from F to E (see Table 3-2) to accommodate potential future sites. TA 16 is within the public access area. These areas would not be cleared, would have no improvements, and would be used for roll-in/roll-out, wheeled-vehicle traffic only.
- Roving Sands is a large air defense exercise that may involve up to 18,000 personnel. The next exercise is planned for 2005. The use of field training exercise sites is rotated for this exercise; previous years' acreage requirements are listed in the table below.

TABLE 4-1
ROVING SANDS AREA REQUIREMENTS

Year of Exercise	Total Acreage Used	Number of Sites Used	Acreage of Largest Site Used
1996	78	8	26
1997	138	6	105
1999	183	8	33

SOURCE: U.S. Army 2001a

- Road and utility improvements are ongoing.
- A future project is envisioned to develop the existing Cane Cholla Helicopter Gunnery Range and Hellfire Training Area into a state-of-the-art helicopter training complex. An attack-helicopter gunnery range would be approximately 13-by-14 miles large and located in the southern portion of McGregor Range.
- The U.S. Army has been exploring the feasibility of relating aviation training to a site better suited for the Kiowa Warrior, Longbow (Apache), Comanche, and potential future unit-level, aviation-training requirements. This type of combat aviation training is a possibility for future missions, although plans to relocate this training are on hold.
- The capability of employing a tactical ballistic missile (TBM) target into live-fire exercises is being investigated. This type of target requires a surface danger zone (SDZ) extending from TA 10 south to TA 25 approximately opposing the flight corridor of the Patriot Missile, in addition to the SDZ required for Patriot Missile firing. The TADC Future Development Concept indicates that TA 10 training category would change from D to D+ because of the potential location for TBM target launch facilities. TA 10 is within the public access area. The TBM target would overfly TAs 10, 11, 12, 25, 26, 27, 29, 30, and 31.
- A new program to fire Army tactical missile system (ATACMS) into McGregor Range is under consideration. If a new program to fire ATACMS into McGregor Range is implemented, then portions of McGregor Range would be exposed to SDZs during a small number of firings each year. The assignment of these impacts is assigned tentatively to TA 25. The TADC Future Development Concept indicates a small portion of TA 25 changing from D to H, Surface Impact as this area becomes a surface impact area for ATACMS IB. Test support for ATACMS would require appropriate safety and environmental clearances.
- Construction of a Military Operations in Urban Terrain Training Complex may occur. If located on McGregor Range, this facility would be in TA 8, immediately west of Meyer Range.
- Other than increases in use that would accompany the new tactical target complex, the training areas that would receive the largest future increase in use would be TA 8

(primarily from 50 percent increase in OHV maneuvers projected in the TADC, facilities use, and dismounted training if a Military Operations in Urban Terrain Training Complex is developed in this area) and TA 32 (use would be concentrated at McGregor Range Camp).

- A rail spur may be constructed from Union Pacific/Southern Pacific rail line to McGregor Range Camp. The connecting point would be along existing track paralleling U.S. Highway 54 and the spur would run eastward to McGregor Range Camp.
- Ammunition Supply Point, Phase III would be located in the vicinity of current Ammunition Supply Point facilities south of U.S. Highway 54 to McGregor Range Camp.

The U.S. Army has completed an INRMP for McGregor Range. Potential future actions that may occur as a result of the implementation of the INRMP include:

- Implementation of endangered species management plans (plans are included in Appendix C of the INRMP)
- Identification and protection of areas of special significance
  - Continued comprehensive landscape monitoring using satellite imagery
  - Development and implementation of forest management plan including fuels and fire management

4.3.2 Cumulative Effects on McGregor Range by Resource or Use

Overall, past and present actions on McGregor Range have resulted in minimal disturbance to resources on the range. This is because public access and resource uses have been largely restricted, and military activities affect only small portions of McGregor Range. This positive effect on resources is further enhanced by McGregor Range's location adjacent to other military ranges with similar use patterns and restrictions. Reasonably foreseeable future actions and the RMPA/EIS alternatives for McGregor Range would continue this pattern of limited resource use. Considerations of cumulative effects for specific resources are provided below.

4.3.2.1 Lands and Realty, Transportation and Access, and OHV Use

The primary difference in potential effect on lands and realty among the alternatives is related to the potential for development of linear facilities (i.e., utility corridors for transmission lines and pipelines, and transportation routes). Potential cumulative effects from utility development, when considered in conjunction with other past, present, and reasonable foreseeable future actions include (1) the potential for increased public access (due to road right-of-way or the road construction associated with development) and subsequent stress on other resources and (2) potential conflict with training facilities or other mission activities.

The locations of proposed utility corridors included under Alternatives A and B are not expected to conflict with existing or potential future mission activities. In addition, these corridors would parallel other linear facilities (transmission lines, roads) and, therefore, would not provide access to new areas. Under the No-Action Alternative and Alternative B, the lack of exclusion and avoidance areas for rights-of-way is not expected to create adverse cumulative effects on mission activities due to the requirement for Secretary of the Army concurrence with any rights-of-way. New areas of access could be created if new rights-of-way are established and would lead to additive and/or interactive impacts on resources.

The development of new roads would result in similar impacts. However, the minimal road construction anticipated by the BLM in combination with military road construction is expected to affect only a small portion of the Planning Area, with minimal cumulative effects.

Area closures or restrictions on OHV use would result in reduced stress on wildlife, vegetation, and archaeological resources. Overall, OHV use at least would be limited to existing roads and trails throughout McGregor Range, limiting any adverse effects on resources.

4.3.2.2 Mineral and Energy Resources

The cumulative impacts of limited or no access to mineral and energy resources on withdrawn public land for exploration and development is not easily quantified since the economic impact depends on the extent and quality of the mineral or energy resource and the viability of mining or developing that resource.

Ground disturbance that might result from the extraction of saleable minerals, when considered in combination with past, present, and reasonably foreseeable future actions, is expected to have minimal incremental effect due to the small area affected and mitigation measures that would be applied (see Section 4.2.3.4).

4.3.2.3 Soil Resources, Water, and Watershed Management

Because BLM has adopted the Standards and Guides, the mitigation of cumulative impacts from grazing should be well-integrated throughout McGregor Range. These range management strategies currently are consistent with the research on arid Southwestern grasslands ecological science and will be adapted to future research and the condition of McGregor Range, as appropriate, to maintain conformity to BLM policy and regulations. In addition, because of the strong reliance on the Standards and Guides' basic science and data collection, cumulative water and soil impacts on habitat and general land health from grazing and recreation will be monitored and can be addressed. Under Alternatives A and C, cumulative watershed impacts can be assessed as the watershed plans are implemented and monitored.

Cumulative impacts on water, soil, and watershed resources from military operations will be addressed in the long-term, joint road-management agreement between the BLM and U.S. Army discussed in Section 4.2.4. There may be adverse impacts on soils that require mitigation measures. Other impacts are positive and result in improved conditions on McGregor Range (see Section 4.2.4). Areas have been identified where the soils are susceptible to increased erosion due to surface disturbance; decreases in productivity due to over-compaction; and vegetation loss due to livestock use or similar uses. Impacts on soils from specific military activities would be evaluated in project-specific NEPA documents. Ongoing and future mitigation and remediation are expected to improve soil resources on the McGregor Range.

Despite all of this, there will be some inevitable cumulative impacts on watersheds that would be expected when all of the alternatives are compared to other past, present, and reasonably foreseeable future actions on McGregor Range. As disturbance in a watershed increases, the hydrologic function tends to degrade, as soil erosion and gullying are followed by lowered plant productivity and increased sedimentation. The severity of these cumulative impacts can be moderated by prompt identification of the problems and long-term observation of the performance of the watershed. Both of these actions are committed to by BLM through watershed plans under Alternatives A and C.

4.3.2.4 Biological Resources (Vegetation, Wildlife Habitat, Special Status Species, and Livestock Grazing)

Cumulative impacts on vegetation, livestock grazing, wildlife habitat, and special status species within McGregor Range are expected to be minimal due to the large expanse of acreage on McGregor Range, the existing and future management of habitat and rangelands within McGregor Range, and adjacent BLM and military lands in the vicinity. The objectives of this RMP are to promote the public land health and the health of the flora and fauna throughout McGregor Range, and the RFFAs are expected to result in nominal impacts on vegetation. Furthermore, the INRMP completed by the U.S. Army focuses on the identification, management, and protection of sensitive species and areas of special significance.

4.3.2.5 Air Quality and Visual Resources

The alternatives in combination with past, present, and reasonably foreseeable future actions are expected to have a minimal additive effect on air quality and visual resources. Some actions, such as prescribed burns or ground-disturbing construction activities, would have temporary localized effects. Potential impacts resulting from the alternatives such as the entrainment of particulate matter and smoke due to fire would be mitigated by implementation of dust control measures and established smoke management mitigation measures (see Sections 4.2.5 and 4.2.10).

4.3.2.6 Fire Management

Fire management activities under all alternatives would conform to the Fire and Fuels Management Plan Amendment for BLM Lands in New Mexico and Texas. The purpose of the RMPA/EA is to restore fire as an integral part of fire-adapted ecosystems in order to meet resource management objectives, to improve the protection of human life and property through the reduction of hazardous fuels, and to establish consistent methods for managing fire and fuels on public land. The activities associated with the alternatives would fit into the statewide approach with overall positive cumulative effects.

4.3.2.7 Hazardous Materials and UXO

The primary effects of the implementation of any of the alternatives on the management and occurrence of hazardous materials and wastes or UXO on McGregor Range are related to the potential for a change in public use of the range for recreational purposes, the implementation of ground-disturbing projects, and the change in the occurrence and frequency of military training activities. Past actions contributing to the presence of hazardous wastes and UXO include the use of McGregor Range for military activities since the late 1940s. Based on the planned addition of some military mission training activities, it is reasonable to expect that these training activities will continue and most likely will increase in the future. Under all alternatives, the dynamic nature of mission activities at McGregor Range would create the need for the use of additional hazardous materials and the occurrence of additional hazardous wastes and UXO. Increased public access to public land for recreational purposes, addition of roads, and construction of linear facilities and watershed units under Alternative B would be expected to create some additive effects when considered in light of increased military training missions. On the other hand, while the addition of controlled-access field-training-exercise sites and air-defense exercises involving large numbers of troops would increase as a reasonably foreseeable future military action, little additive impact would be anticipated in combination with the increase in resource protection considered under Alternative C.

4.3.2.8 Cultural and Paleontological Resources

The number of cultural resources that could be threatened by activities conducted in accordance with the RMPA could vary depending on which alternative is selected. Regardless of which alternative is implemented, only a small fraction of the more than 6,000 archaeological and historical sites estimated to be present on McGregor Range are likely to be negatively affected. Section 106 of the National Historic Preservation Act reviews of all future specific projects are likely to eliminate, reduce, or satisfactorily mitigate any identified adverse effects on most, if not all, of the threatened sites. Therefore, implementation of the RMPA is not projected to result in significant cumulative effects on cultural resources eligible for the National Register. If Alternative A or C were selected, the RMPA would result in beneficial effects because of more intensive management of selected high-value resources.

Ongoing activities and studies of McGregor Range may result in the discovery of paleontological resources.

4.3.2.9 Social and Economic Conditions

The military mission will continue as a critical component of the past, present, and future social and economic environment of McGregor Range and those individuals, groups, communities, or organizations that have ties to the military use of the range. McGregor Range's role as the principal training facility for air-defense systems is a critical part of military operational readiness for national defense and has far-reaching social and economic implications. The alternatives evaluated in this RMPA/EIS promote ongoing compatibility with the military purposes of the range and, therefore, have the potential for additive and interactive impacts in the continued management of McGregor Range in this capacity.

Ongoing population growth and development in the region would continue to influence the public demand and use of McGregor Range resources. Public interests, attitudes, and values concerning McGregor Range change commensurate with changes in demographics, community characteristics, and economic conditions. The action alternatives evaluated in this RMPA/EIS provide an incremental cumulative social and economic impact in that they would provide mechanism for implementation of an updated management policy that is reflective of public interests, attitudes, and values of today rather than those of the 1990 RMPA.

Of the alternatives, only Alternative C has impacts that could have incremental negative cumulative impacts on social and economic conditions. The aggregate impact of the elimination of recreation, vegetative sales, livestock grazing, and other uses on McGregor range under this alternative would negatively affect local social and economic conditions. Cumulative impacts could occur and are evaluated in terms of the affected communities' capacity for change, which is interactive with the diversity of the economy and opportunities for displaced activities to occur elsewhere in the community. The impacts associated with such changes (evaluated in detail in Section 4.2.17.5) in combination with overall economic development trends in the area likely would result in a slight localized shift away from agricultural uses and lifestyles to other economic sectors and land uses increasing in the area. The additive impact of drought conditions on livestock grazing also would be a limiting factor in the resiliency of this socioeconomic activity, which has traditionally been a widespread use of public and private land throughout the region.

5.0

Consultation and Coordination

5.0 CONSULTATION AND COORDINATION

5.1 INTRODUCTION

During the planning process for this Resource Management Plan Amendment (RMPA)/ Environmental Impact Statement (EIS), formal and informal efforts were made by the Bureau of Land Management (BLM) to involve other Federal agencies, State and local governments, and the public. BLM initiated the planning process in May 2001 by requesting comments to determine the scope of issues and concerns that needed to be addressed during the studies and in the document. As part of the resource inventory, members of the interdisciplinary team formally and informally contacted various relevant agencies to request data to supplement BLM's existing resource database. The sections of this chapter describe these efforts including the consultation required, how this RMPA/EIS is consistent with other finalized plans, public participation activities throughout the process, and public review of the Draft RMPA/EIS.

5.2 CONSULTATION AND COORDINATION

Coordination with other agencies was accomplished through communications, meetings, and other cooperative efforts between the interdisciplinary team and involved Federal, State, and local agencies and organizations.

5.2.1 Military Involvement and Coordination

When the withdrawal of McGregor Range was renewed in 1999, Public Law 106-65 directed the BLM to manage the withdrawn public land and its resources within McGregor Range under the authority of the Federal Land Policy and Management Act (FLPMA) of 1976 and to develop a management plan. The management plan must accommodate the military uses, but nevertheless remain consistent with the principles of multiple use and sustained yield. The U.S. Department of the Army (U.S. Army) is responsible for using the land wisely, assessing the impacts of its activities on the environment, and minimizing or mitigating those impacts to the extent practicable.

Early in the planning process, BLM invited the U.S. Army, Fort Bliss, to actively participate in the process as a cooperating agency. Representatives from Fort Bliss have been involved at various steps of the process. Involvement included the following: (1) reviewed draft materials (e.g., scoping notice, media release) prepared early in the process; (2) provided a presentation at the scoping meeting to explain the military's mission and activities on McGregor Range; (3) reviewed the draft Scoping Report; (4) provided descriptive information regarding its mission and activities on McGregor Range for use in the RMPA/EIS; (5) reviewed and commented on the Management Situation Analysis; (6) attended interdisciplinary team meetings to participate in developing goals and objectives; (7) reviewed the preliminary alternatives; and (8) reviewed and commented on the preliminary Draft RMPA/EIS.

5.2.2 U.S. Fish and Wildlife Service

Consultation with the U.S. Fish and Wildlife Service (USFWS) is required by the Fish and Wildlife Coordination Act (16 USC Sec. 661 et seq.) and Endangered Species Act of 1973 (16 USC Sec 1531 et seq.) prior to initiation of any project by BLM that may affect any Federally listed special status species or its habitat in accordance with Section 7 of the Endangered Species Act of 1973. This RMPA/EIS is considered a major planning effort, and consultation has been initiated. As part of data collection, BLM requested and the USFWS provided a list of Federally listed species that may occur in Otero County. This letter is on file in the Las Cruces Field Office of BLM. A Biological Assessment will be completed prior to issuing the Proposed RMPA/Final EIS. The Biological Assessment and associated correspondence will be on file at the BLM Las Cruces Field Office.

5.2.3 New Mexico Department of Game and Fish

The New Mexico Department of Game and Fish and the New Mexico Natural Resources Department also have been contacted in regard to State-listed threatened and endangered plant and animal species. This is consistent with legislation protecting State-listed species. Coordination and consultation with the State will continue throughout the planning process and during implementation of the RMPA.

5.2.4 State Historic Preservation Officer

In accordance with the New Mexico Protocol Agreement for the BLM National Programmatic Agreement, BLM notified the New Mexico State Historic Preservation in March 2002 that an RMPA/EIS was being prepared for McGregor Range. The BLM solicited comments about four aspects of the plan for preparing the cultural resources component of the RMPA/EIS:

- The area of potential effect on cultural resources was defined as the limits of the McGregor Range (although BLM decisions would relate only to the public land on the Range).
- The cultural resources component of the RMPA/EIS would be based on existing data.
- The Mescalero Apache and Fort Sill Apache were identified as American Indian groups that could have traditional cultural ties to the project area and would be consulted about traditional cultural properties.
- The public involvement program for the RMPA/EIS would be used to provide opportunities for public review and comment about issues related to managing the cultural resources on the Range.

The State Historic Preservation Office offered no comments on these or other elements of the strategy for preparing the cultural resources component of the RMPA/EIS, and also declined BLM's offer to prepare sections of the RMPA/EIS. BLM will solicit review comments from the State Historic Preservation Office on the draft RMPA/EIS, and continue to consult about undertakings pursed in accordance with an adopted plan in accordance with the BLM National Programmatic Agreement and New Mexico Protocol.

5.2.5 American Indian Tribes

In 2002, BLM contacted the Mescalero Apache Tribe, Fort Sill Apache Tribe, and Ysleta Del Sur Pueblo to notify them that an RMPA/EIS was being prepared for the McGregor Range. BLM provided information about the plan for developing the cultural resource components of the RMPA/EIS, and requested that the tribe identify any traditional cultural places and resources that should be considered, as the plan was prepared. BLM also offered the tribes an opportunity to assist in preparation of the RMPA/EIS.

Ysleta Del Sur Pueblo responded to confirm their cultural affiliation with the project area and requested additional information. BLM provided additional information. None of the tribes decided to participate in preparation of the plan.

5.3 CONSISTENCY WITH OTHER PLANS

The BLM planning regulations require that resource management plans (RMPs) be "consistent with officially approved or adopted resource-related plans, and the policies and procedures contained therein, of other Federal agencies, State and local governments, and Indian tribes, so long as the guidance and RMPs also are consistent with the purposes, policies and programs of Federal laws and regulations applicable to public lands" (43 CFR 1610.3-2). In order to ensure such consistency, finalized plans were solicited from Federal, State, and local agencies as well as Tribal governments listed in Table 5-2 (at the end of this chapter). These same agencies received copies of the Draft RMPA/EIS for review and comment.

Section 202 of the FLPMA requires the BLM to coordinate land use planning activities with other Federal agencies, State and local governments, and Indian tribes. FLPMA also requires BLM to ensure that consideration is given to non-BLM plans that are pertinent to the development of the RMPA, assist in resolving inconsistencies between Federal and non-Federal government plans, and to provide for meaningful public involvement of other Federal agencies, State and local government officials, and Indian tribes in the development of the RMPA.

There are no known inconsistencies between any of the alternatives and officially approved and adopted resource-related plans of other Federal agencies, State and local governments, and Indian tribes. Coordination and consultation will continue throughout the planning process and implementation of the RMPA.

5.4 PUBLIC PARTICIPATION

The public participation process for the RMPA/EIS has been ongoing throughout the development of the RMPA/EIS and will continue to the Record of Decision. In addition to formal public participation activities, informal contacts occur frequently with public land users, industry, and interested persons through meetings, field trips, telephone calls, or letters. All public participation applicable to the RMPA/EIS has been documented and analyzed as part of the planning process and kept on file in the Las Cruces Field Office.

5.4.1 Identification of Issues

The RMPA/EIS and scoping process began on May 21, 2001, with the publication in the *Federal Register* of BLM's Notice of Intent to amend the RMP, prepare an EIS, and conduct public scoping meetings. This notice invited the general public as well as Federal, State, and local government agencies to identify issues and submit comments regarding the RMPA/EIS.

In addition to the Notice of Intent, the BLM prepared a scoping notice to send to interested parties. The scoping notice included a brief letter from the Las Cruces Field Office Manager, a newsletter, and a comment form. The notice provided background information, announced the preparation of the RMPA and EIS, explained the planning process, project schedule, agency responsibilities, and announced the public scoping meetings and other public participation opportunities. The scoping notice was distributed to approximately 400 agencies, interested organizations, and individuals in early June 2001. The mailing list has been and will continue to be reviewed and updated throughout the RMPA/EIS process.

Also, a media release introducing the project and announcing the scoping meetings was prepared and issued on June 11, 2001 by the BLM to local and regional newspapers, television, and radio.

Two public scoping meetings were held in June 2001 to obtain input on issues and planning criteria, and determine the scope of the RMPA/EIS. Several displays illustrating or explaining components of the RMPA/EIS were stationed around the meeting room for those in attendance to review. Each meeting began with a presentation by BLM representatives after which comments and questions were received from the public. Table 5-1 summarizes the public meeting attendance and number of oral comments.

TABLE 5-1
PUBLIC SCOPING MEETING ATTENDANCE AND COMMENTS

Meeting Date	Meeting Location	Number in Attendance	Number of Oral Comments Received at the Meetings
Wednesday, June 20, 2001	Alamogordo, New Mexico	12	17
Thursday, June 21, 2001	Las Cruces, New Mexico	17	30
Total		29	47

In addition to the comments received during the meetings, a total of 36 comment forms and letters were submitted to BLM. Scoping ended on July 6, 2001; however, additional comments were accepted after that date.

A Summary Scoping Report was issued in August 2001 that described the scoping process and summarized the public comments and issues obtained.

5.4.2 Public Review of the Draft RMPA/EIS

The next official opportunity for the public to participate in the planning process occurs during the agency and public review period of this Draft RMPA/EIS. The Draft RMPA/EIS has been sent to the entities listed in Table 5-2. Concurrent with the distribution of the Draft RMPA/EIS, a BLM Notice of Availability was published in the *Federal Register* announcing the availability of the document for public review and comment. The U.S. Environmental Protection Agency Notice of Availability in the *Federal Register* marks the beginning of the 90-day review and comment period. The RMPA/EIS is being prepared by an interdisciplinary team of environmental planning and resource specialists. Table 5-3 is a list of the team members, titles, and responsibility associated with the RMPA/EIS.

Comments, including names and street addresses of respondents, will be available for public review at the BLM Las Cruces Field Office, 1800 Marquess, Las Cruces, New Mexico, 88005, during regular business hours (7:45 a.m. to 4:30 p.m.), Monday through Friday, except holidays, and may be published as part of the Proposed RMPA/Final EIS. Individual respondents may request confidentiality. If you wish to withhold your name or street address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspections in their entirety.

5.4.3 Public Hearing

About midway through the 90-day review period, BLM will conduct public hearings to listen to and understand the public's comments on the Draft RMPA/EIS. An open house will precede the hearing to provide an opportunity for the public to view maps and other informational displays, and to ask questions about the planning process and its results. A hearing officer will conduct the hearing allowing individuals to formally provide comments on the Draft RMPA/EIS. The dates and locations of the hearings will be announced in the local media and on the BLM website at www.nm.blm.gov.

5.4.4 Proposed RMPA/Final EIS

All written and oral comments received during the 90-day period will be compiled, analyzed, and summarized. A Proposed RMPA/Final EIS (PRMPA/FEIS) will be prepared that addresses and provides responses to the comments received on the Draft RMPA/EIS. The PRMPA/FEIS will contain additional information, as needed, to support the responses to the comments. Following the publication of a Notice of Availability in the *Federal Register*, distribution of the PRMPA/FEIS, a 60-day Governor's Consistency Review, and a 30-day protest period, the BLM will issue a Record of Decision summarizing the findings and decisions regarding the preferred alternative and its determination regarding compliance with NEPA and other regulations. Also, the RMPA will be prepared to document the resource management decisions and complete the BLM's resource management planning process for McGregor Range.

TABLE 5-2
LIST OF DOCUMENT RECIPIENTS

Federal

- Department of Agriculture
    - Agriculture Research Service
    - Jornada Experimental Range
    - Agricultural Stabilization and Conservation Service
    - Animal Damage Control
    - Rural Development Office
    - Forest Service
    - Natural Resources Conservation Service
- Department of Commerce
- Department of Defense
    - Department of the Air Force
        - Holloman AFB
    - Department of Army
        - Corps of Engineers
        - Fort Bliss
        - McGregor Range
        - White Sands Missile Range
- Department of Energy
- Department of Justice
    - Immigration and Naturalization Service
        - Border Patrol
- Department of the Interior
    - Bureau of Indian Affairs
    - Bureau of Land Management
        - Resource Advisory Council
    - Bureau of Reclamation
    - Fish and Wildlife Service
    - National Park Service
        - White Sands National Monument
    - Natural Resources Library
    - Office of Environmental Policy and Compliance
- Department of Transportation
- Department of Treasury
    - Customs Service
- Environmental Protection Agency
- International Boundary and Water Commission

New Mexico State Agencies

- Agriculture Department
    - Agricultural Programs and Resources Division
        - Livestock Board
- Bureau of Mines and Mineral Resources
- Commerce and Industry Department
- Department of Finance and Administration
    - Office of Cultural Affairs
        - Museum of New Mexico
        - Historic Preservation Division
- Department of Game and Fish
- Department of Public Safety
    - State Police Division
- Energy and Minerals Department
    - Forestry and Resources Conservation Division
    - Energy Conservation and Management Division
    - Mining and Minerals Division
    - Oil, Gas, and Minerals Division
    - Park and Recreation Division
- Governor's Office
- Environment Department
    - Environmental Protection Division
    - Waste and Water Management Division
    - Surface Water Quality
- Highway and Transportation Department
- Human Services Department
    - Office of Indian Affairs
- Land Office
    - Commissioner's Office
- New Mexico State University
- New Mexico National Guard
- Military Affairs Department
- State Engineer Office/InterState Stream Commission
- Taxation and Revenue Department
- Transportation Department
- University of New Mexico

Congressional Delegation and New Mexico State Legislators

- U.S. Senator Jeff Bingaman
- U.S. Senator Pete V. Domenici
- U.S. Congressman Steve Pearce
- State Senator, District 31
- State Senator, District 34
- State Senator, District 35
- State Senator, District 36
- State Senator, District 37
- State Senator, District 38
- State Senator, District 40
- State Representative, District 51
- State Representative, District 52
- State Representative, District 53
- State Representative, District 56
- State Representative, District 32
- State Representative, District 33
- State Representative, District 34
- State Representative, District 35
- State Representative, District 36
- State Representative, District 37

Local and Regional Governments, Agencies, and Indian Tribes

Chambers of Commerce (Alamogordo and El Paso)
Cities of Alamogordo, El Paso, Las Cruces, Cloudcroft
Dona Ana County Commissioners
El Paso Archaeological Society
El Paso County Commissioners
Fort Sill Apache Tribe
Franklin Mountains State Park
Hudspeth County Commission
Jicarilla Apache Tribe
Mescalero Apache Tribe
Otero County Commissioners
Otero County Economic Development Council, Inc.
Otero County Electric Cooperative, Inc.
Otero County Public Land Use Advisory Council
Otero Soil and Water Conservation District
Rio Grande Council of Governments
Southeastern New Mexico Economic Development District
Village of Tularosa
Ysleta del Sur Pueblo

Other Groups/Individuals

Addwest Minerals Company
Archaeological and Historical Research
Audubon – New Mexico
Cornudas Mountain Foundation
Dona Ana County Associated Sportsmen
El Paso Trans-Pecos Audubon
Franklin Mountains Coalition
Forest Guardians
Grazing Permittees McGregor Range
Great Old Broads for Wilderness
Harvey E. Yates Company
Human Systems Research
Mesilla Valley Audubon Society
New Mexico Cattle Growers Association
New Mexico Farm & Livestock Bureau
New Mexico Justice Council
New Mexico Native Plant Society
New Mexico Wilderness Alliance
New Mexico Wilderness Coalition
Permits West, Inc.
People for Native Ecosystems
Prairie Dawgs Motorcycle Club
Public Lands Advocacy
Sierra Club - Southern New Mexico Group Rio Grande Chapter
Southwest Center for Biological Diversity
Southwest Consolidated Sportsmen
Southwest Environmental Center
T&E, Inc.
Texas-NM Power Company
The Black Range Lodge
The Nature Conservancy
White Sands Cycling Club
Wilderness Supporters
World Wildlife Fund

TABLE 5-3
LIST OF PREPARERS AND REVIEWERS

Name	Title	RMPA/EIS Responsibility
BLM		
Tom Phillips	Land Use Planner	Team Leader
Tim Sanders	Lands and Minerals Staff Supervisor	Management Oversight
Bill Gilbert	Natural Resource Specialist	Planning and Environmental Coordination
Rusty Stovall	Geographer	GIS
James Christensen	Rangeland Management Specialist	Livestock Grazing Program, McGregor Range Management
Bruce Call	Soil Scientist	Soil, Water, Air
Philip Smith	Rangeland Management Specialist	Vegetation
Rich LaCasse	Rangeland Management Specialist	Noxious, Invasive Weeds
Roy Placker	Biologist	Wildlife, Special Status Species - Animals
Mike Howard	Biologist	Special Status Species - Plants
Pam Smith	Archaeologist	Cultural Resources
Joe Torrez	Geologist	Geology, Minerals
Joe Sanchez	Natural Resource Specialist	Recreation, Visual, Wilderness
Ryan Whiteaker	Fire Management Specialist	Fire Management
Tom Custer	Physical Scientist – Hazardous Materials	Hazardous Materials
Philip Rhinehart	Realty Specialist	Lands, Access
Mike O'Neill	Physical Anthropologist	Paleontological Resources
Rena Gutierrez	Writer/Editor	Editing
Jeanette Pranzo	Socioeconomist	Social and Economic Conditions
J.W. Whitney	Planning and Environmental Coordinator	Planning and Environmental Coordination
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TABLE 5-3
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APPENDICES

APPENDIX A

Acts of Authority and Mandates for the Bureau of Land Management

APPENDIX A

ACTS OF AUTHORITY AND MANDATES FOR THE BUREAU OF LAND MANAGEMENT

BACKGROUND ACTS AND ACTS OF AUTHORITY

Engle Act of 1958

The Engle Act (43 United States Code [USC] 155 et seq.) requires an act of Congress to withdraw more than 5,000 aggregate acres for military use. The Engle Act specifies that all mineral rights remain under the jurisdiction of the Secretary of Interior but provides that there be no disposition of or exploration for minerals in withdrawn lands if the Secretary of Defense determines that it would be inconsistent with military use of the lands.

Public Law 99-606, Military Lands Withdrawal Act of November 6, 1986

Public Law (PL) 99-606, or the Military Lands Withdrawal Act of 1986, established the withdrawal of McGregor Range and five other installations for a period of 15 years. Key provisions of PL 99-606 included (1) nonmilitary uses of the withdrawn land were to be managed by the U.S. Department of the Interior (USDI) pursuant to the Federal Land Policy and Management Act (FLPMA), (2) the USDI may issue leases, easements, rights-of-way, or other authorizations for nonmilitary use of the land with concurrence of the U.S. Army, (3) public access may be restricted, but restrictions were limited to the minimum areas and periods required, (4) warning signs must be posted and appropriate steps must be taken to notify the public of any closures, (5) USDI was required to develop a management plan for the area and the U.S. Army and USDI were required to enter into a memorandum of understanding (MOU) to implement the management plan, and (6) the U.S. Army was required to maintain a program of decontamination for withdrawn lands that keeps them at least at the level of cleanup achieved in fiscal year 86 and report to Congress on decontamination efforts annually. PL 99-606 expired in November 2001, and was replaced with new legislation, PL 106-65, which is discussed below.

PL 106-65 National Defense Authorization Act for Fiscal Year 2000

PL 106-65, which was passed by Congress in 1999, establishes the withdrawal of McGregor Range and four other ranges for a period of 25 years. Section 3011 (d) (1) of Public Law 106-65 establishes the withdrawal of McGregor Range:

> (d) McGregor Range, Fort Bliss, New Mexico
>
> (1) Withdrawal and reservation.—Subject to valid existing rights and except as otherwise provided in this subtitle, all lands and interests in lands within the boundaries established at McGregor Range of Fort Bliss, as referred to in paragraph (2), are hereby withdrawn from all forms of appropriation under the public land laws, including the mining laws and the mineral leasing and geothermal leasing laws. Such lands are reserved for use by the Secretary of the Army for—
>
> (A) military maneuvering, training, and equipment development and testing;

> (B) training for aerial gunnery, rocketry, electronic warfare, and tactical maneuvering and air support associated with the Air Force Tactical Target Complex; and
>
> (C) other defense-related purposes consistent with the purposes specified in this paragraph.

Section 3014 directs the Secretary of the Interior to develop a management plan for the area:

> SEC. 3014. MANAGEMENT OF LANDS
>
> (a) Management by Secretary of the Interior
>
> (1) Applicable law.—During the period of the withdrawal of lands under this subtitle, the Secretary of the Interior shall manage the lands withdrawn by section 3011 pursuant to the FLPMA (43 USC 1701 et seq.), other applicable law, and this subtitle.

The management plan must be consistent with applicable law and military use, and include provisions necessary for proper management and protection of the resources and values of the area. Other key provisions of PL 99-606, as mentioned above, were carried forward to PL 106-65 except that decontamination for withdrawn land would be conducted to the extent funds are available and consistent with applicable Federal and State law.

MANDATES AND GUIDANCE FOR PLANNING AND ENVIRONMENTAL RESOURCES MANAGEMENT

National Environmental Policy Act of 1969

The National Environmental Policy Act of 1969 (40 USC 4331 et seq.) and its implementing regulations (40 Code of Federal Regulations [CFR] Part 1500) apply to Federal actions including those relating to resource management. This statute requires the Federal Authorized Officers in Federal agencies to perform an environmental analysis and disclose effects of their decisions on the quality of the human environment. The law further requires the Federal Authorized Officers to identify and describe the significant environmental issues associated with their decisions and to develop alternatives to a proposed action (including the alternative of no action). Federal Authorized Officers must disclose the direct, indirect, and cumulative effects of the decisions; adverse environmental effects that cannot be avoided; the relationship between short-term uses of the human environment and the maintenance of long-term productivity; and any irreversible or irretrievable commitments of resources made by the decision.

Federal Land Policy and Management Act of 1976

This statute (43 USC 1700, et seq.) and its implementing regulations (43 CFR Part 1600) define principles for the management of public land and its resources. This act directs the Secretary of the Interior to develop, maintain, and, when appropriate, revise land use plans that provide for the use of public land managed on the basis of multiple use and sustained yield unless otherwise specified by law. Through FLPMA, BLM is responsible for the balanced management of the public land and resources and their various values. FLPMA specifically states that public land will be managed under the principles of multiple use and, further, indicates that multiple use includes harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment.

Historic Preservation Act of 1966

The National Historic Preservation Act of 1966 (PL 89-665, 80 Stat. 915, 16 USC 470), as amended, mandates that when Federal undertakings (i.e., Federal projects or Federally funded or licensed projects) are planned and implemented, the responsible Federal agencies give due consideration to historic properties (i.e., resources eligible for the National Register of Historic Places), regardless of land status. Regulations for *Protection of Historic Properties* (36 CFR Part 800) define a process for demonstrating such consideration by consulting with the State Historic Preservation Officers, Federal Advisory Council on Historic Preservation, and other interested organizations and individuals.

Clean Air Act of 1970

The Clean Air Act (91 Stat. 685; 42 USC 7401 et seq.), as amended, provides that each State is responsible for ensuring achievement and maintenance of air quality standards within its borders so long as such standards are at least as stringent as Federal standards established by the U.S. Environmental Protection Agency (EPA).

Clean Water Act of 1970

The Clean Water Amendments Act ("Federal Water Pollution Control Act Amendments of 1972") of October 18, 1972 (PL 92-500, 86 Stat. 816, as amended; 33 USC 1251, et seq.) establishes Federal standards to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Upon passage of the Environmental Quality Acts and adoption of the water quality standards, state agencies were empowered to enforce water quality standards as long as they are at least as stringent as the Federal standards established by the EPA. The State of New Mexico has not been delegated authority from the Federal government for any of the major water quality programs under the Clean Water Act (CWA) including the National Pollutant Discharge Elimination System, Pretreatment, Sludge Management, and Wetlands.

Also, Section 404 of the CWA, administered by the U.S. Army Corps of Engineers, requires that "waters of the U.S." be protected by permits prior to dredge or fill activities occurring in such areas. Waters include intermittent streams, mud flats, and sand flats. Wetlands that meet jurisdictional criteria of Section 404 of the CWA are partially protected in that a permit is required prior to any dredge or fill activity occurring in such areas.

Endangered Species Act of 1973

The Endangered Species Act (PL 93-204; 16 USC 15311, et seq.), as amended, requires special protection and management on Federal lands for threatened or endangered species. The U.S. Fish and Wildlife Service (FWS) is responsible for administration of this act. Federal agencies proposing an action or processing an action proposed by a third party that "may affect," in any way, the existence of an identified species must consult with the FWS to determine if, and how, the proposed action will affect those species. Mitigation measures are developed through the consultation process and are put forth as suggested conservation measures included in a formal FWS Biological Opinion, which addresses whether the proposed action would jeopardize the continued existence of any officially listed endangered or threatened species.

BLM Handbook H-1601-1

BLM Handbook H-1601-1, *Land Use Planning Handbook*, provides supplemental guidance for implementing the BLM land use planning requirements established by Sections 201 and 202 of FLPMA and the regulations in 43 CFR 1600. The handbook provides guidance for preparing and amending land use plan decisions through the planning process, and for maintaining resource management plans. The handbook also provides guidance for developing implementation plans and program-specific and resource-specific decisions.

BLM New Mexico Standards for Public Land Health and Guidelines for Livestock

Grazing Management

The Statewide Resource Management Plan Amendment/Environmental Impact Statement for *New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management* (Standards and Guides) analyzed the effects of adopting standards for public land health and guidelines for livestock grazing management in New Mexico. At the conclusion of the process (approval of Record of Decision on January 12, 2001), a set of standards and guidelines were approved and incorporated by plan amendment into the eight existing resource management plans that cover BLM-administered land in New Mexico.

Standards of land health are expressions of physical and biological conditions or degree of function required for healthy and sustainable lands, and define minimum resource conditions that must be achieved (USDI, BLM 2001). Standards describe conditions needed for healthy sustainable public rangelands and relate to all uses of public land. They provide the measure of resource quality and functioning condition by which the health of public lands will be assessed. In order to measure the effectiveness of each standard, a set of measurable indicators and associated criteria were identified. Specific standards and indicators are defined for upland sites, biotic communities (including native, threatened, endangered, and special status species) and riparian sites.

Guidelines are practices, methods, or techniques determined to be appropriate to ensure that standards can be met or that significant progress can be made toward meeting those standards. Guidelines are tools such as grazing systems, vegetative treatments, or improvement projects that help managers and permittees achieve standards. Guidelines for livestock grazing are described in the Standards and Guides. The livestock grazing guidelines were designed to improve public land health and are to be implemented at the watershed, allotment, or pasture level if it is determined that the standards are not being met, and livestock grazing is the cause. Guidelines for activities other than livestock grazing are not mandated through regulation; however, they may be developed should the need arise (USDI, BLM 2001). If it is determined that the standards are not being met as a result of another activity (i.e., road placement, recreation, etc), program leads would determine appropriate actions to ensure that standards can be met or that significant progress can be made toward meeting those standards.

Fort Bliss Integrated Natural Resources Management Plan (INRMP)

Preparation and implementation of an INRMP is required by the Sikes Act (16 USC 670a, et seq.), which requires a program of planning for, and the development, maintenance, and coordination of, wildlife, fish, and game conservation and rehabilitation in each military reservation. The Fort Bliss INRMP guides the implementation of the natural resources program on Fort Bliss, including McGregor Range, and provides the framework for managing natural resources within the military mission. Through the plan, Fort Bliss will accomplish integration of natural resource management requirements with planning and conducting military training, construction, maintenance, repair, and real property and/or land use decisions by implementing near- and long-term natural resource management priorities. The INRMP helps ensure the conservation of natural resources on Fort Bliss, as well as compliance with related environmental laws and regulations. The plan helps ensure the maintenance of quality training lands upon which to accomplish the critical mission of Fort Bliss.

Executive Order 11644, Use of Off-Road Vehicles on the Public Lands, as amended by Executive Order 11989

Executive Order 11644, Use of Off-Road Vehicles on the Public Lands (as amended by Executive Order 11989) was signed by Richard Nixon in 1972 to ensure that the use of off-road (off-highway) vehicles on public land would be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands. This Executive Order required Federal agencies to designate specific areas where OHV use would be permitted and areas where OHV use would be prohibited.

APPENDIX B

General Management Guidance: Noxious Weed Management Plan

APPENDIX B

GENERAL MANAGEMENT GUIDANCE NOXIOUS WEED MANAGEMENT PLAN

The noxious weed management plan incorporates measures to (1) inventory noxious weeds on McGregor Range (giving priority to roads for survey and subsequent treatment); (2) maintain a noxious weeds inventory database; (3) take actions to prevent or minimize the need for vegetation control when and where feasible, considering the management objectives for the site; (4) use effective integrated methods of vegetation control including biological, chemical, cultural, mechanical, and physical methods when and where feasible (using herbicides if necessary after considering the effectiveness of all potential methods or in combination with other methods or controls); and (5) apply stipulations for control of noxious weeds, as follows:

- Minerals:
  - Inspect gravel pits and fill sources to identify weed infestations. Do not allow removal of materials that could be contaminated with noxious weeds.
  - Include weed prevention and treatment in all sand and gravel activity plans. The permit holder should be required to control weeds aggressively within the scope of their operations to prevent the introduction and spread of weeds off of the disturbed sites.
- Recreation: Sign main access points for weed awareness and weed prevention techniques.
- Range Management: Monitor grazing units to prevent weed introductions at corrals, salt licks, watering sites, and sensitive soil condition areas. Remove and/or treat weeds when found.
- BLM authorized construction:
  - Minimize the removal of vegetation and disturbance of soil during construction, reconstruction, and maintenance activities. Reseed and/or reclaim disturbed areas with native seeds certified as weed free for the area affected.
  - Use weed-free soil, gravel, and other fill material.
  - Clean construction equipment (power or high-pressure cleaning) of all mud, dirt, and plant parts before moving into the construction site.
  - Incorporate weed prevention mitigating measures into improvement project stipulations.
- Fire:
  - Include prevention measures in all activities; i.e., washing fire trucks (coming into and leaving the fire area, if they have worked in weed contaminated areas).

  - During fire rehabilitation, reseed all disturbed soil with native seeds that have been certified as weed free, and use materials that are weed free, for erosion control. Consider weed prevention factors in all silvicultural prescriptions (thinning, fuelwood).

- General:

  - Identify and document newly introduced weed species in formerly uninfested areas. Coordinate weed prevention and early detection efforts with State, local, and Fort Bliss weed-management entities.

  - Inventory new weed infestations and provide appropriate control measure immediately to prevent their spread.

  - Review all land-surface-disturbing activities—such as watershed improvement projects, recreation or road improvement—and apply appropriate control and/or prevention practices as identified in the current weed management plan.

APPENDIX C

Ecological Sites

APPENDIX C

TABLE C-1
BLM EVALUATION OF ECOLOGICAL SITES ON McGREGOR RANGE
2001-2002

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
El Paso Draw/ Limestone Hills CP-4	This site would be dominated by the grama grasses followed by curlyleaf muhly. The dominant shrubs would be rhus, mountain mahogany (catclaw mimosa on the south slopes), and yuccas. North and east slopes are expected to be dominated by shrubs while south and west slopes would have more grass species. There would be some widely scattered rills on steeper slopes with the depth being limited to limestone subsurface layer. Occasional gullies would be expected and also limited by the limestone bedrock. Bare ground should range between 10 and 18 percent with bare patches less than 8 –10 inches in diameter. Larger patches (up to 16 inches) may occur and associated with shrubs. Standard Habit Sites (SHS) for this site would be Grass Mountains, Mixed Shrub Mountain, and Piñon Juniper/Grass Mountain.	Limestone Hills of Units 4 and 5	This site is dominated by the grama grasses followed by curlyleaf muhly. The dominant shrubs are rhus, mountain mahogany (catclaw mimosa on the south slopes) and yuccas. North and east slopes are dominated by shrubs while south and west slopes have more grass species. Overall production is low due to lack of precipitation over the last three years. There are some widely scattered rills on steeper slopes. There are occasional gullies. Bare ground ranges between 10 and 18 percent with bare patches less than 8-10 inches in diameter. Larger patches (up to 16 inches) occur when associated with shrubs. SHS are Grass Mountains, Mixed Shrub Mountain, and Piñon Juniper/Grass Mountain.
El Paso Draw/ Limestone Hills CP-4 (Piñon Juniper Savannah)	This site would be dominated by the grama grasses followed by curlyleaf muhly. The dominant shrubs would include rhus, mountain mahogany (catclaw mimosa on the south slopes), and yuccas. Piñon and juniper trees scattered throughout the site but more common on the north slopes would be expected. North and east slopes are expected to be dominated by shrubs while southwest slopes would have more grass species. There would some widely scattered rills on steeper slopes with the depth being limited to limestone subsurface layer. Occasional gullies would be expected and also limited by the limestone bedrock. Bare ground should range between 10 and 18 percent with bare patches less than 8 -10 inches in diameter. Larger patches (up to 16 inches) may occur and be associated with shrubs. SHS for this site would be Grass Mountains, Mixed Shrub Mountain, and Piñon Juniper/Grass Mountain.	Limestone Hills of Units 4 and 5	This site is dominated by the grama grasses followed by curlyleaf muhly. The dominant shrubs include rhus, mountain mahogany (catclaw mimosa on the south slopes), and yuccas. Piñon and juniper trees are scattered throughout the site but are more common on the north slopes as would be expected. North and east slopes are dominated by shrubs while southwest slopes have more grass species. Overall production is low due to lack of precipitation over the last three years. There are some widely scattered rills on steeper slopes and some occasional gullies. Bare ground ranges between 10 and 18 percent with bare patches less than 8 to 10 inches in diameter. Larger patches (up to 16 inches) occur when associated with shrubs. SHS are Grass Mountains, Mixed Shrub Mountain, and Piñon Juniper/Grass Mountain.
El Paso Draw/ Limestone Hills CP-4 (Piñon Juniper Woodland)	On this site the grama grasses are replaced by piñon and juniper trees as the dominant species. Shrub oak becomes the dominant shrub. North and east slopes are expected to be dominated by shrubs and trees while south and west slopes would have more grass species. There would some widely scattered rills on steeper slopes with the depth being limited to limestone subsurface layer. Occasional gullies would be expected and also limited by the limestone bedrock. Bare ground should range between 10 and 18 percent with bare patches less than 8 -10 inches in diameter. Larger patches (up to 16 inches) may occur and associated with shrubs. SHS for this area would be Piñon Juniper/Grass Mountain.	Limestone Hills of Unit 4	Density of piñon and juniper has increased, causing decrease of grass species beneath the heavy canopy. This has caused an increase in bare ground patches, which has increased the number and extent of rills over what is expected for the site. Beneath the dense piñon and juniper canopy, the herbaceous cover has been reduced and replaced with litter from the piñon and juniper. Gullies are still not occurring on the side slopes, but some are forming in the deeper, loamy soils in the bottoms. Anticipated causes may be the increase in piñon and juniper, past and present roads, other improvements, and grazing. Present day and historical grazing patterns in bottoms have reduced stubble height and cover, accelerating formation of gullies. In the functional/structural groups there are more woody species and less herbaceous species than expected; however, the present die-off of piñon may be a naturally occurring cycle and may be causing a return to the expected species composition.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
El Paso Draw/ Loamy CP-4	This site would be co-dominated by black grama and tobosa followed by blue grama. The dominant shrubs would include yuccas and fourwing saltbush. There would be no rills or gullies expected on this site. Bare ground would make up 30-35 percent of the ground cover with patch sizes being less 8-10 inches in diameter. SHS would a Grass Flat.	South of Timberon below Rim Tank in Units 4 and 5	Density of piñon and juniper has increased, causing decrease of grass species beneath the heavy canopy. This has caused an increase in bare ground patches, which has increased the number and extent of rills over what is expected for the site. Beneath dense piñon and juniper canopy, the herbaceous cover has been reduced and replaced with litter from the piñon and juniper. Gullies are still not occurring on the side slopes, but some are forming in the deeper, loamy soils in the bottoms. Anticipated causes may be the increase in piñon and juniper, past and present roads, other improvements, and grazing. Present day and historical grazing patterns in bottoms have reduced stubble height, and cover accelerating formation of gullies. In the functional/structural groups there are more woody species and less herbaceous species than expected; however, the present die-off of piñon may be a naturally occurring cycle and may be causing a return to the expected species composition.
El Paso Draw/ Gravelly/ Gravelly SD-3	This description is for the ridges and slopes above the gullies within the ecological site. They would be co-dominated by creosote, black grama, and bush muhly. Rills and gullies are dependant on topographic position, slope, and rainfall intensity. They are expected to be few, natural, and continuous. Bare ground cover would be 45 percent with patch size being as large as 2-3 feet. SHS would be Mixed Shrub Rolling Upland. Habitat is highly diverse including herbaceous and woody species.	North of West Poe Tank in Unit 7	This site is co-dominated by creosote, black grama, and bush muhly. There are lots of loose rock and gravel. Area is well covered with vegetation. There is slightly more catclaw than expected. The rills and gullies are dependant on topographic position, slope, and rainfall intensity. They are few, natural, and continuous. Bare ground cover is 45 percent with patch size being as large as 2-3 feet. SHS is Mixed Shrub Rolling Upland. Habitat is highly diverse including herbaceous and woody species.
El Paso Draw/ Limestone Hills SD-3 (creosote)	The site would be dominated by creosote and catclaw with slim tridens and black grama being the dominant grasses. Rills would be widely scattered on steeper slopes, but quantity and size diminishing as slopes decrease. The depth of the rills would be limited by the limestone subsurface layer. There would be occasional gullies present due to the slopes and rock outcrops and would also be limited by the limestone bedrock. Bare ground cover would make up 15-20 percent of the ground cover with bare patches being less than 8-10 inches in diameter. Occasional 12-inch-diameter patches may be associated with shrubs. SHS would be Creosote Hills.	North of West Poe Tank in Unit 7	The site is dominated by creosote and catclaw with slim tridens and black grama being the dominant grasses. There is more creosote and catclaw than expected. Rills are widely scattered on steeper slopes. There are occasional gullies present due to the slopes and rock outcrops. Bare ground cover makes up 15-20 percent of the ground cover with bare patches being less than 8-10 inches in diameter. There are occasional 12-inch-diameter patches when associated with shrubs. SHS is Creosote Hills.
El Paso Draw/ Draw SD-4	This site is located such that it transports runoff from adjacent sites. This site would be co-dominated by sideoats grama and cane bluestem followed by a mixture of bush muhly, blue grama, Arizona cottontop, and others. Dominant shrubs would include apache plume, skunkbush sumac, and bricklebush. There would be numerous rills forming as a consequence of flooding which occurs frequently with high intensity short duration precipitation events. Gullying would be part of this system due to the high amounts of runoff from adjacent sites during these events. Bare ground would make up 20-30 percent of ground cover with bare ground patch size generally less than 12 inches in diameter. SHS would be Arroyo.	Wild Cat and El Paso Draws in Units 5, 7, 8, and 9	This site is co-dominated by sideoats grama and cane bluestem followed by a mixture of bush muhly, blue grama, Arizona cottontop, and others. Dominant shrubs include apache plume, skunkbush sumac, and bricklebush. There are numerous rills forming as a consequence of flooding, which occurs frequently with high intensity short duration precipitation events. Gullying is part of this system due to the high amounts of runoff from adjacent sites during these events. Bare ground makes up 20-30 percent of ground cover with bare ground patch size generally less than 12 inches diameter. SHS is Arroyo.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
El Paso Draw/ Gravelly SD-4	This site would be dominated by high grass canopy with blue and black gramas being dominant. Some scattered shrubs and cacti would be expected with creosote being the dominant shrub. Some shallow and discontinuous rills may be present but gullies are not expected. Bare ground should be less that 35 percent with bare ground patches not related to disturbance being less than 24 inches. SHS is expected to be a Grass Rolling Upland that is suitable for bald eagle and aplomado falcon. The grama grass cactus may be found on this site.	West of Van Winkle Tank	The site is dominated by high grass canopy with black and blue grama being dominant. There are scattered shrubs and cacti, but creosote composition is higher than expected. Rills are slightly more abundant and deeper than expected with some gullies being present. Bare ground is slightly greater and 35 percent and some bare ground patches slightly exceed 24 inches. SHS is Grass Rolling Upland but tending toward Creosote Rolling Upland because of the increase in creosote composition. Bald eagles occasionally migrate through the site, but there are no resident populations of aplomado falcon.
El Paso Draw/ Limy SD-4	This site would be dominated by blue grama and the dominant shrub would be yucca. No rills or gullies would be expected on this site. Bare ground would make up 20-30 percent of the ground cover with bare patches being less than 8-10 inches in diameter. Occasional larger diameter patches may be associated with shrubs, ant mounds, and rodent disturbances. SHS would be a Grass Rolling Upland.	Limy portions of units 5, 7, 9, 10, 11, and 12	This site is dominated by blue grama and the dominant shrub is yucca. No rills or gullies are on this site. Bare ground makes up 20-30 percent of the ground cover with bare patches being less than 8-10inches in diameter. Occasional larger diameter patches are associated with shrubs, ant mounds, and rodent disturbances. SHS is a Grass Rolling Upland. The Limy sites in Units 7 and northern edge of 9 and 11 (10-15 percent of all Limy sites) have a higher percentage of creosote than the more southern sites. They are in less than satisfactory condition.
El Paso Draw/ Loamy SD-4	This site is located on the landscape such that it receives overland flow from adjacent sites. It would be dominated by tobosa and the dominant shrub would be yucca. Yuccas are extremely scattered, but tend to be much larger in size due to the influence of higher amounts of overland flow. No rills and gullies would be expected. Bare ground would make up 30-35 percent of the ground cover with patches being less than 10-20 inches. SHS would be Grass Flat. This yucca grassland would be suitable for aplomado falcon and black-tailed prairie dog. Numbers for these species would be at their potential. This site becomes suitable habitat for mountain plover in degraded states. Mountain plover potential numbers increase with degraded states.	Loamy in all Units except for unit 4	Roads historically have been located in this site and were improperly maintained without turnouts. Rills and gullies have developed as a result of these roads. Currently, actions are being taken to correct this problem by properly maintaining the roads and removing some of them from the site. More time is needed to completely take care of the problem. 1997 quantitative data indicates more bare ground than expected. This is due to less than favorable precipitation received during recent years causing less production of grass species resulting in reduced canopy cover and amount of litter. Patch sizes tend to be what is expected for the site. The 1997 quantitative data indicate areas where Himu2 and Bogr2 have interchanged hierarchy. Other areas show the presence of Boer4. SHS is Grass Flat. This site is suitable for aplomado falcon and black-tailed prairie dog; however, there are no known populations of either. There are some mountain plover populations in the areas of degraded states.
El Paso Draw/ Loamy (Ponded) SD-4	This site is located on the landscape such that it receives overland flow from adjacent sites. It would be dominated by tobosa and the dominant shrub would be yucca. Yuccas are extremely scattered, but tend to be much larger in size due to the influence of higher amounts of overland flow. No rills and gullies would be expected. Bare ground would make up 30-35 percent of the ground cover with patches being less than 10-20 inches. SHS would be Grass Flat. This yucca grassland would be suitable for aplomado falcon and black-tailed prairie dog. Numbers for these species would be at their potential. This site becomes suitable habitat for mountain plover in degraded states. Mountain plover potential numbers increase with degraded states.	Loamy North of Mary Toy Tank in Unit 11	This site is located on the landscape such that it receives overland flow from adjacent sites. As a result of ponding, salts are left after evaporation, which has an effect on infiltration and species composition. There is slightly more burro grass and less alkali sacaton and tobosa. It is dominated by tobosa and the dominant shrub would be yucca. Yuccas are extremely scattered, but tend to be much larger in size due to the influence of higher amounts of overland flow. There are no rills and gullies. Bare ground makes up 30-35 percent of the ground cover with patches being less than 10-20 inches. There is also more mortality and decadence due to ponding. There is less litter and production because of ponding and livestock and wildlife grazing being concentrated in this area. SHS is Grass Flat. This site is suitable for aplomado falcon and black-tailed prairie dog; however, there are no known populations of either. There are some mountain plover populations in the areas of degraded states.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
El Paso Draw/ Loamy Sand SD-4	This site would be dominated by black grama and the dominant shrub would be sage. No rills or gullies would be expected. Bare ground values would range from 25-35 percent of the ground cover with patch sizes of 8-10 inches in diameter. Larger patches may occur and would be associated with shrubs, ant mounds, and rodent disturbances.	North of Horse Camp along El Paso Draw in Units 9 and 10.	This site is dominated by black grama and the dominant shrub is sage. There are no rills or gullies. Bare ground values range from 25-35 percent of the ground cover with patch sizes of 8-10 inches in diameter. Larger patches occur and are associated with shrubs, ant mounds, and rodent disturbances.
El Paso Draw/ Shallow Sandy SD-4	This site would be dominated by black and blue grama. The dominant shrub would be yucca. Rills and gullies would not be expected on this site. Bare ground would make up 20-30 percent of the ground cover and bare patches would be less than 8-10 inches in diameter. Occasional larger bare patches would be associated with shrubs, ant mounds, and rodent disturbances. SHS would be a Grass Rolling Upland. This habitat would be suitable for aplomado falcons. In degraded states, the habitat would become more suitable for mountain plovers. This site also is suited for the grama grass cactus.	Shallow Sandy Portions of Units 8, 9, 10, 11, and 12	Shallow Sandy sites in Units 8 and northern edge of 10 (about 10 percent of all Shallow Sandy sites) have a higher percentage of creosote than the more southern sites as per 1997 data. These areas are in less than satisfactory condition, potentially causing pronghorn numbers to be slightly less than expected. The remainder of sites are dominated by black and blue grama. The dominant shrub is yucca. There are no rills and gullies. Bare ground makes up 20-30 percent of the ground cover and bare patches are less than 8-10 inches in diameter. There are occasional larger bare patches associated with shrubs, ant mounds, and rodent disturbances. SHS is a Grass Rolling Upland. Aplomado falcons are not present, but recovery potential exists.
El Paso Draw/ Shallow Sandy/Limy SD-4	This site would be dominated by blue and black grama. The dominant shrub would be yucca. Rills and gullies would not be expected on this site. Bare ground would make up 20-30 percent of the ground cover and bare patches would be less than 8-10 inches in diameter. Occasional larger bare patches would be associated with shrubs, ant mounds, and rodent disturbances. SHS would be a Grass Rolling Upland. This habitat would be suitable for aplomado falcons. In degraded states, the habitat would become more suitable for mountain plovers. This site also is suited for the grama grass cactus.	Transition Zones between Shallow Sandy and Limy in Units 7, 9, 10, and 12	This site is dominated by blue and black grama. The dominant shrub would be yucca. There are no rills and gullies. Bare ground makes up 20-30 percent of the ground cover and bare patches are less than 8-10 inches in diameter. There are occasional larger bare patches that are associated with shrubs, ant mounds, and rodent disturbances. SHS is a Grass Rolling Upland. This habitat is suitable for aplomado falcons. Aplomado falcons are not present, but recovery potential exists.
El Paso Draw/ Limestone Hills SD-5	This site would be dominated by high grass canopy with sideoats grama and curly leaf muhly being dominant. Some scattered shrubs and cacti would be expected. There are some widely scattered shallow and discontinuous rills and gullies due to steep slopes. Bare ground should be less than 20 percent with bare ground patches not related to disturbance being less than 12 inches. SHS is expected to be a Grass Hills that is suitable for bald eagle and peregrine falcon. The bald eagles and peregrine falcons will be very sparse. Kuenzler's hedgehog cactus, Alamo beardtongue, and gray sibara are the plant special status species that have recorded populations within 50 miles of these sites. Therefore, these plants may have slight potential to exist in similar habitats on these sites.	Limestone Hills of Units 5 and 7	This site is dominated by high grass canopy with sideoats grama and curly leaf muhly being dominant. There are scattered shrubs and cacti. There are widely scattered, shallow, and discontinuous rills and gullies. Bare ground is less than 20 percent and bare ground patches are less than 12 inches. SHS is Grass Hills. The bald eagles and peregrine falcons are sparse. There are no recorded populations of Kuenzler's hedgehog cactus, Alamo beardtongue, and gray sibara. Plant production and reproduction do not meet expected values due to drought over the past three to five years. Mule deer populations are only 50 percent of the expected numbers. Causes are unknown.
El Paso Draw/ Limestone Hills SD-5 (South)	This site would be dominated by high grass canopy with Warnock's grama and New Mexico feather grass being dominant. Some scattered shrubs and cacti would be expected. There are some widely scattered shallow and discontinuous rills and gullies due to steep slopes. Bare ground should be less than 50 percent with bare ground patches not related to disturbance being less than 36 inches. SHS is expected to be a Grass Hills that is minimally suitable for aplomado falcon.	Limestone Hills of Units 9, 11 and 12	This site is dominated by high grass canopy with Warnock's grama and New Mexico feather grass being dominant. There are scattered shrubs and cacti. There are widely scattered, shallow, and discontinuous rills and gullies. Bare ground is less than 50 percent with bare ground patches not related to disturbance being less than 36 inches. SHS is Grass Hills. There are no resident populations of aplomado falcon.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
Culp / Limestone Hills CP-4	This site would be dominated by the grama grasses followed by curlyleaf muhly. The dominant shrubs would be rhus, mountain mahogany (catclaw mimosa on the south slopes), and yuccas. North and east slopes are expected to be dominated by forbs and shrubs while south and west slopes would have more grass species. There would some widely scattered rills on steeper slopes with the depth being limited to limestone subsurface layer. Occasional gullies would be expected and also limited by the limestone bedrock. Bare ground should range between 10 and 18 percent with bare patches less than 8-10 inches in diameter. Larger patches (up to 16 inches) may occur and associated with shrubs. SHS for this site would be Grass Mountains, Mixed Shrub Mountain, and Piñon Juniper/Grass Mountain.	Limestone Hills of Units 3 and 4. Upper Culp Watershed	This site is dominated by the grama grasses followed by curlyleaf muhly. The dominant shrubs are rhus, mountain mahogany (catclaw mimosa on the south slopes), and yuccas. North and east slopes are dominated by forbs and shrubs while south and west slopes would have more grass species. There is more mortality, decadence, and litter due to the lack of precipitation over the last three years. Vegetative production is also lower as result of the lower precipitation amounts. There are some widely scattered rills on steeper slopes and some occasional gullies. Bare ground range between 10 and 18 percent with bare patches less than 8-10 inches in diameter. Larger patches (up to 16 inches) occur with shrubs. SHS for this site are Grass Mountains, Mixed Shrub Mountain, and Piñon Juniper/Grass Mountain. The deer population is less than 50 percent of its expected values due to a combination of factors, all of which are not known. Other species are at levels commensurate with lack of precipitation over the last three years.
Culp / Limestone Hills CP-4 (Piñon Juniper Savannah)	This site would be dominated by the grama grasses followed by curlyleaf muhly. The dominant shrubs would include rhus, mountain mahogany (catclaw mimosa on the south slopes), and yuccas. Piñon and juniper trees scattered throughout the site but more common on the north slopes would be expected. North and east slopes are expected to be dominated by shrubs while southwest slopes would have more grass species. There would be some widely scattered rills on steeper slopes with the depth being limited to the limestone subsurface layer. Occasional gullies would be expected and also limited by the limestone bedrock. Bare ground should range between 10 and 18 percent with bare patches less than 8 to 10 inches in diameter. Larger patches (up to 16 inches) may occur and be associated with shrubs. SHS for this site would be Grass Mountains, Mixed Shrub Mountain, and Piñon Juniper/Grass Mountain.	Limestone Hills of Unit 4. Upper Culp Watershed	This site is dominated by the grama grasses followed by curlyleaf muhly. The dominant shrubs include rhus, mountain mahogany (catclaw mimosa on the south slopes), and yuccas. Piñon and juniper trees are scattered throughout the site, but are more common on the north slopes. North and east slopes are dominated by shrubs while southwest slopes have more grass species. There is more mortality, decadence, and litter due to the lack of precipitation over the last three years. Vegetative production is also lower as result of the lower precipitation amounts. There are some widely scattered rills on steeper slopes and there are some occasional gullies. Bare ground range between 10 and 18 percent with bare patches less than 8-10 inches in diameter. Larger patches (up to 16 inches) occur with shrubs. SHS for this site are Grass Mountains, Mixed Shrub Mountain, and Piñon Juniper/Grass Mountain. The deer population is less than 50 percent of its expected values due to a combination of factors, all of which are not known. Other species are at levels commensurate with lack of precipitation over the last three years.
Culp / Limestone Hills CP-4 (Pinon Juniper Woodland)	On this site the grama grasses are replaced by piñon and juniper trees as the dominant species. Shrub oak becomes the dominant shrub. North and east slopes are expected to be dominated by shrubs and trees while south and west slopes would have more grass species. There would be some widely scattered rills on steeper slopes with the depth being limited to the limestone subsurface layer. Occasional gullies would be expected and also limited by the limestone bedrock. Bare ground should range between 10 and 18 percent with bare patches less than 8-10 inches in diameter. Larger patches (up to 16 inches) may occur and be associated with shrubs. SHS for this area would be Piñon Juniper/Grass Mountain.	Limestone Hills of Unit 4. Upper Culp Watershed	Density of piñon and juniper has increased, causing decrease of grass species beneath the heavy canopy. This has caused an increase in bare ground patches, which has increased the number and extent of rills over what is expected for the site. Beneath dense piñon and juniper canopy, the herbaceous cover has been reduced and replaced with litter from the piñon and juniper. Gullies are still not occurring on the side slopes, but some are forming in the deeper, loamy soils in the bottoms. Anticipated causes may be the increase in piñon and juniper, past and present roads, other improvements, and grazing. Present day and historical grazing patterns in bottoms have reduced stubble height, and cover, accelerating formation of gullies. In the functional/structural groups there are more woody species and less herbaceous species than expected; however, the present die-off of piñon may be a naturally occurring cycle and may be causing a return to the expected species composition.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
Culp / Loamy CP-4	This site would be co-dominated by black grama and tobosa followed by blue grama. The dominant shrubs would include yuccas and fourwing saltbush. There would be no rills or gullies expected on this site. Bare ground would make up 30-35 percent of the ground cover with patch sizes being less 8-10inches in diameter. SHS would a Grass Flat.	Loamy of Unit 4. Upper Culp Watershed	Density of piñon and juniper has increased, causing decrease of grass species beneath the heavy canopy. This has caused an increase in bare ground patches, which has increased the number and extent of rills over what is expected for the site. Beneath dense piñon and juniper canopy, the herbaceous cover has been reduced and replaced with litter from the piñon and juniper. Gullies are still not occurring on the side slopes but some are forming in the deeper, loamy soils in the bottoms. Anticipated causes may be the increase in piñon and juniper, past and present roads, other improvements, and grazing. Present day and historical grazing patterns in bottoms have reduced stubble height, and cover accelerating formation of gullies. In the functional/structural groups there are more woody species and less herbaceous species than expected; however, the present die-off of piñon may be a naturally occurring cycle and may be causing a return to the expected species composition.
Culp / Deep Sand SD-2	This site would be dominated by dropseeds. This site is well suited for forb production and the dominate shrubs would be yucca and sand sage. No rills or gullies would be expected on this site. Bare ground would make up 75 percent of the ground cover. Patches would be less than 20 inches in diameter and discontinuous. Some wind scoured blowouts and depositional areas would be expected because of the large amount of bare ground. SHS would be a Grass Rolling Upland.	Deep Sand of Units 2 and 3.	During high intensity rain storms, there are a few rills that develop at the base of the dunes. Runoff flows off dunes for short distances, briefly ponds in small depressions then infiltrates into soil. This site is continuously accumulating and composed of shifting deep sand. Bare ground fluctuates with yearly precipitation. There is more mesquite than expected. Black grama is no longer observed on the site. Other herbaceous species are what are expected for the site. Total annual production has not changed but composition of species making up the production has changed slightly (mesquite). SHS is Mesquite Sand Dunes. The potential exists for sand prickly pear cactus and Scheer's pincushion cactus.
Culp / Sandy/Deep Sand SD-2	This site would be dominated by black grama followed by dropseeds. This site is well suited for forb production and the dominate shrubs would be yucca and morman tea. No rills or gullies would be expected on this site. Bare ground would make up 73 percent of the ground cover. Patches would be less than 18 inches in diameter and discontinuous. Some wind scoured blowouts and depositional areas would be expected because of the large amount of bare ground. SHS would be a Grass Rolling Upland. Habitat would be suitable for aplomado falcon.	Deep Sand of Units 2 and 3.	This site has degraded to mesquite coppice dunes with bare interspaces. The amount of bare ground has increased and patches are larger and connected allowing for movement and deposits of large quantities of soil. Plant composition has changed drastically, but has not had a significant effect on infiltration rates. Mesquite dunes contribute to increased runoff. Some interspaces have a tendency to form hardpans, reducing infiltration. Mesquite has become the dominant species and black grama is no longer observed on the site. Some of the other species of the desired condition are still present. The total annual production has not changed but composition of species making up the production has changed. SHS is Mesquite Sand Dunes. The potential exists for sand prickly pear cactus and Scheer's pincushion cactus. This site has very little potential for aplomado falcon.
Culp / Gravelly (arroyo) SD-3	This site is located such that it transports runoff from adjacent sites. This site would be co-dominated by sideoats grama and cane bluestem followed by a mixture of bush muhly, blue grama, Arizona cottontop and others. Dominant shrubs would include apache plume, skunkbush sumac, and bricklebush. There would be numerous rills form as a consequence of flooding, which occurs frequently with high intensity short duration precipitation events. Gullying would be part of this system due to the high amounts of runoff from adjacent sites during these events. Bare ground would make up 20-30 percent of ground cover with bare ground patch size generally less than 12 inches diameter. SHS would be Arroyo. This habitat would be critical to neotropical migrants.	Gravelly of Unit 3 East of Camp Windy.	Due to the location of the site (mouth of Grapevine Canyon), a tremendous amount of runoff from the upper portions of the watershed flows onto and through this site. Roads are channeling water out of its natural courses. This creates the active alluvial fan. The presence of these roads has a tendency to focus runoff through the site. This reduces infiltration and increases erosion. There is more bare ground than expected. Gullies, although few in number, are deep, narrow arroyos. Creosote has increased in composition while herbaceous species composition has decreased. Composition of black grama is less than creosote.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
Culp / Gravelly/ Gravelly SD-3	This description is for the ridges and slopes above the gullies within the ecological site. They would be co-dominated by creosote, black grama, and bush muhly. Rills and gullies are dependant on topographic position, slope, and rainfall intensity. They are expected to be few, natural, and continuous. Bare ground cover would be 45 percent with patch size being as large as 2-3 feet. SHS is Mixed Shrub Rolling Upland. Habitat is highly diverse including herbaceous and woody species.	Gravelly/ gravelly of Unit 3	This site is co-dominated by creosote, black grama, and bush muhly. There is a higher percent composition of mesquite than expected on the site. There are lots of loose rock and gravel. Area is well covered with vegetation. There is slightly more catclaw than expected. The rills and gullies are dependant on topographic position, slope, and rainfall intensity. They are few, natural, and continuous. Bare ground cover is 45 percent with patch size being as large as 2-3 feet. SHS is Mixed Shrub Rolling Upland. Habitat is highly diverse including herbaceous and woody species.
Culp/ Gyp Upland SD-3	This site would be dominated by black grama, gyp grama, and alkali sacaton. Dominant shrubs would be littleleaf sumac, Morman tea, and fourwing saltbush. There would be a few scattered and discontinuous rills and shallow gullies. Bare ground would make up 46 percent of the ground cover with patches generally less than 24 inches in diameter. Larger patches may occur when associated with shrubs. SHS would be Mesquite Rolling Upland.	Gyp Upland of Unit 2	This site is dominated by black grama, gyp grama, and alkali sacaton. Dominant shrubs are littleleaf sumac, Morman tea, and fourwing saltbush. There are a few scattered and discontinuous rills and shallow gullies. Bare ground makes up 46 percent of the ground cover with patches generally less than 24 inches in diameter. Larger patches may occur when associated with shrubs. SHS is Mesquite Rolling Upland. This site is suitable for aplomado falcons, but no populations are present.
Culp / Limestone Hills SD-3	This site would be dominated by black grama, hairy grama, blue grama, and curlyleaf muhly. Dominant shrub would be beargrass. There would be some widely scattered rills on steeper slopes, but quantity and size would diminish as steepness of slope decreases. The depth of the rills is limited to the limestone subsurface layer. There would be occasional gullies due to steepness of the slopes and rock outcrops. The depth of the gullies would also be limited by limestone bedrock. Bare ground would make up 15-20 percent of the ground cover with patch size less than 8-10 inches in diameter. Patches may be up to 12 inches when associated with shrubs. SHS would be a Grass Hills. The site would be suitable habitat for migrating bald eagles and peregrine falcon. Alamo beardtongue and gray sibarra would possibly be found in crevices in cliffs on north to northeast facing aspects.	Limestone Hills of Unit 3	This site is dominated by black grama, hairy grama, blue grama, and curlyleaf muhly. Dominant shrub is beargrass. There are some widely scattered rills on steeper slopes. There are occasional gullies due to steepness of the slopes and rockoutcrops. Bare ground makes up 15-20 percent of the ground cover with patch size less than 8-10 inches in diameter. Patches occur up to 12 inches when associated with shrubs. SHS is a Grass Hills. The site is suitable habitat for migrating bald eagles and peregrine falcon.
Culp / Limestone Hills SD-3 (creosote)	The site would be dominated by creosote and catclaw with slim tridens and black grama being the dominant grasses. Rills would be widely scattered on steeper slopes but quantity and size diminish as slopes decrease. The depth of the rills would be limited by the limestone subsurface layer. There would be occasional gullies present due to the slopes and rock outcrops and would also be limited by the limestone bedrock. Bare ground would make up 15-20 percent of the ground cover with bare patches being less than 8-10 inches in diameter. Occasional 12inch diameter patches may be associated with shrubs. SHS would be Creosote Hills.	Limestone Hills of Unit 3	The site is dominated by creosote and catclaw with slim tridens and black grama being the dominant grasses. There is more creosote and catclaw than expected. Rills are widely scattered on steeper slopes. There are occasional gullies present due to the slopes and rock outcrops. Bare ground makes up 15-20 percent of the ground cover with bare patches being less than 8-10 inches in diameter. There are occasional 12 inch diameter patches when associated with shrubs. SHS is Creosote Hills.
Culp / Loamy SD-3	This site would be dominated by tobosa and burro grass followed by black and blue grama. Dominant shrubs would be fourwing saltbush. No rills or gullies would be expected. Bare ground would make up 50 percent of the ground cover with patches being less than 8-10 inches' in diameter. SHS would be a Grass Flats. Grassland microsites may be suitable for aplomado falcon.	Loamy of Units 1, 2 and 3 (0-1% slopes)	In Loamy sites up slope, gullies have formed and have altered the flow patterns allowing increased amounts and velocities of runoff to reach these lower Loamy sites. Flow patterns on these lower sites have increased where the gullies empty onto the site and decreased outside the influence of the gullies. Bare ground is more than what is expected and is directly related to flow patterns and drought. There is slightly more creosote, tar bush and mesquite than expected. Grama grasses are not commonly observed. SHS is currently Mixed Shrub but still has large amounts of herbaceous species. Wildlife species are those associated with Grass Flat and Mixed Shrub. This site is suitable for aplomado falcon. Although aplomado falcons are not present, recovery potential exists.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
Culp / Loamy SD-3	These sites are located higher in the watershed, are slightly steeper and have a slightly different existing condition than those described immediately above but maintain the same desired future condition.	Loamy of Units 1, 2 and 3 (1-3 percent slopes)	Roads historically have been located through this site and were improperly maintained without turnouts. Rills have developed as a result of these roads and livestock trails. Linear flow patterns that are not expected in some areas of this site have developed as a result of these roads and livestock trails. Linear flows cause cutting and subsequent drying of the surrounding areas. Being drier leads to other problems. In some areas, bare ground has increased where runoff channels instead of spreading throughout the site causing the soils on the outer edges to become more arid. A few gullies have developed. However, these gullies, though small in number, can cause major problems for the site. Areas where offsite runoff flows onto the site have expected plant composition and distribution. Areas that do not receive this runoff are much less productive and have less herbaceous and more woody species. These areas change with changes in flow patterns. Creosote and mesquite appear to be invading the site. The grama grasses are not commonly observed. SHS is Creosote/Mixed Shrub due to increase of woody species. Wildlife species are those associated with Creosote/Mixed Shrub. The habitat for aplomado falcon has been degraded and the existing habitat is suitable for night blooming cereus.
Culp / Sandhills SD-3	This site is isolated, surrounded by limestone hills, and the source of the sand is unknown. This site would be dominated by a variety of forbs and dropseeds. The dominant shrub would be shinnery oak. A few rills would be expected on the steeper slopes. Bare ground would make up 55 percent of the ground cover and patch size would be less than 20 inches. These patches could vary depending on precipitation. Some blowouts would be expected because of the large amount of bareground. SHS would be a Grass Rolling Upland.	Sandhills of Unit 3	During high intensity rain storms, there are a few rills that develop at the base of the dunes. Runoff flows off dunes for short distances, briefly ponds in small depressions, then infiltrates into soil. This site is continuously accumulating and composed of shifting deep sand. Bare ground fluctuates with yearly precipitation. There is more mesquite than expected. Black grama is no longer observed on the site. Other herbaceous species are what are expected for the site. Total annual production has not changed but composition of species making up the production has changed slightly (mesquite). SHS is Mesquite Sand Dunes. The potential exist for sand prickly pear cactus and Scheer's pincushion cactus. Site resembles a grass sand hills area and wildlife species present are suited for Grass Sand hills.
Culp / Draw SD-4	This site would be co-dominated by sideoats grama and cane bluestem followed by a mixture of bush muhly, blue grama, Arizona cottontop, and others. Dominant shrubs would include apache plume, skunkbush sumac, and bricklebush. There would be numerous rills forming as a consequence of flooding which occurs frequently with high intensity short duration precipitation events. Gullying would be part of this system due to the high amounts of runoff from adjacent sites during these events. Bare ground would make up 20-30 percent of ground cover with bare ground patch size generally less than 12 inches in diameter. SHS would be Arroyo.	Draw of Unit 3 Bottom of Culp Canyon	This site is co-dominated by sideoats grama and cane bluestem followed by a mixture of bush muhly, blue grama, Arizona cottontop, and others. Dominant shrubs include apache plume, skunkbush sumac, and bricklebush. There are numerous rills forming as a consequence of flooding which occurs frequently with high intensity short duration precipitation events. Gullying is part of this system due to the high amounts of runoff from adjacent sites during these events. Bare ground makes up 20-30 percent of ground cover with bare ground patch size generally less than 12 inches in diameter. SHS is Arroyo.
Culp / Gravelly SD-4	This site would be dominated by high grass canopy with blue and black gramas being dominant. Some scattered shrubs and cacti would be expected with creosote being the dominant shrub. Some shallow and discontinuous rills may be present, but gullies are not expected. Bare ground should be less that 35 percent with bare ground patches not related to disturbance being less than 24 inches. SHS is expected to be a Grass Rolling Upland that is suitable for bald eagle and aplomado falcon. The grama grass cactus may be found on this site.	Gravelly of Unit 3	The site is dominated by high grass canopy with black and blue grama being dominant. There are scattered shrubs and cacti but creosote composition is higher than expected. Rills are slightly more abundant and deeper than expected with some gullies being present. Bare ground is slightly greater than 35 percent and some bare ground patches slightly exceed 24 inches. SHS is Grass Rolling Upland but tending toward Creosote Rolling Upland because of the increase in creosote composition. Bald eagles occasionally migrate through the site, but there are no resident populations of aplomado falcon.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
Culp / Limy SD-4	This site would be dominated by blue grama and the dominant shrub would be yucca. No rills or gullies would be expected on this site. Bare ground would make up 20-30 percent of the ground cover with bare patches being less than 8-10 inches in diameter. Occasional larger diameter patches may be associated with shrubs, ant mounds, and rodent disturbances. SHS would be a Grass Rolling Upland.	Limy of Unit 7	These sites have a higher percentage of creosote than the more southern sites. These areas have a vegetative dominance of black grama as per 1997 data. There is more bare ground and patch size is larger than expected. SHS has degraded, potentially causing pronghorn numbers to be slightly less than expected. Aplomado falcons are not present but recovery potential exists.
Culp / Loamy SD-4	This site is located on the landscape such that it receives overland flow from adjacent sites. It would be dominated by tobosa and the dominant shrub would be yucca. Yuccas are extremely scattered but tend to be much larger in size due to the influence of higher amounts of overland flow. No rills and gullies would be expected. Bare ground would make up 30-35 percent of the ground cover with patches being less than 10-20 inches. SHS would be Grass Flat. This yucca grassland would be suitable for aplomado falcon and black-tailed prairie dog. Numbers for these species would be at their potential. This site becomes suitable habitat for mountain plover in degraded states. Mountain plover potential numbers increase with degraded states.	Loamy in Unit 9	Roads historically have been located in this site and were improperly maintained without turnouts. Rills and gullies have developed as a result of these roads. Currently, actions are being taken to correct this problem by properly maintaining the roads and removing some of them from the site. More time is needed to completely take care of the problem. 1997 quantitative data indicates more bare ground than expected. This is due to less than favorable precipitation received during recent years, causing less production of grass species, resulting in reduced canopy cover and amount of litter. Patch sizes tend to be what is expected for the site. The 1997 quantitative data indicate areas where Himu2 and Bogr2 have interchanged hierarchy. Other areas show the presence of Boer4. SHS is Grass Flat. This site is suitable for aplomado falcon and black-tailed prairie dog however there are no known populations of either. There are some mountain plover populations in the areas of degraded states.
Culp / Shallow Sandy/Limy SD-4	This site would be dominated by blue and black grama. The dominant shrub would be yucca. Rills and gullies would not be expected on this site. Bare ground would make up 20-30 percent of the ground cover and bare patches would be less than 8-10 inches in diameter. Occasional larger bare patches would be associated with shrubs, ant mounds and rodent disturbances. SHS would be a Grass Rolling Upland. This habitat would be suitable for aplomado falcons. In degraded states the habitat would become more suitable for mountain plovers. This site is also suited for the grama grass cactus.	Transition Zones between Shallow Sandy and Limy in Units 7 and 9	This site is dominated by blue and black grama. The dominant shrub would be yucca. There are no rills and gullies. Bare ground makes up 20-30 percent of the ground cover and bare patches are less than 8-10 inches in diameter. There are occasional larger bare patches that are associated with shrubs, ant mounds and rodent disturbances. SHS is a Grass Rolling Upland. This habitat is suitable for aplomado falcons. Aplomado falcons are not present, but recovery potential exists.
Culp / Limestone Hills SD-5	This site would be dominated by high grass canopy with sideoats grama and curly leaf muhly being dominant. Some scattered shrubs and cacti would be expected. There are some widely scattered, shallow, and discontinuous rills and gullies due to steep slopes. Bare ground should be less than 20 percent with bare ground patches not related to disturbance being less than 12 inches. SHS is expected to be a Grass Hills that is suitable for bald eagle and peregrine falcon. The bald eagles and peregrine falcons will be very sparse. Kuenzler's hedgehog cactus, Alamo beardtongue, and gray sibara are the plant special status species that have recorded populations within 50 miles of these sites. Therefore, these plants may have slight potential to exist in similar habitats on these sites.	Limestone Hills in Units 3, 7 and 9	This site is dominated by high grass canopy with sideoats grama and curly leaf muhly being dominant. There are scattered shrubs and cacti. There are widely scattered, shallow, and discontinuous rills and gullies. Bare ground is less than 20 percent and bare ground patches are less than 12 inches. SHS is Grass Hills. There are no recorded populations of Kuenzler's hedgehog cactus, Alamo beardtongue, and gray sibara. Plant production and reproduction do not meet expected values due to drought over the past three to five years. Mule deer populations are only 50 percent of the expected numbers. Causes are unknown.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
Escondida/ Limestone Hills CP-4	This site would be dominated by the grama grasses followed by curlyleaf muhly. The dominant shrubs would be rhus, mountain mahogany (catclaw mimosa on the south slopes), and yuccas. North and east slopes are expected to be dominated shrubs while south and west slopes would have more grass species. There would some widely scattered rills on steeper slopes with the depth being limited to limestone subsurface layer. Occasional gullies would be expected and also limited by the limestone bedrock. Bare ground should range between 10 and 18 percent with bare patches less than 8-10 inches in diameter. Larger patches (up to 16”) may occur and associated with shrubs. SHS for this site would be Grass Mountains, Mixed Shrub Mountain, and Piñon Juniper/Grass Mountain.	Limestone Hills of Unit 3	This site is dominated by the grama grasses followed by curlyleaf muhly. The dominant shrubs are rhus, mountain mahogany (catclaw mimosa on the south slopes), and yuccas. North and east slopes are dominated by shrubs while south and west slopes have more grass species. Overall production is low due to lack of precipitation over the last three years. There are some widely scattered rills on steeper slopes. There are occasional gullies. Bare ground ranges between 10 and 18 percent with bare patches less than 8-10 inches in diameter. Larger patches (up to 16 inches) occur when associated with shrubs. SHS are Grass Mountains, Mixed Shrub Mountain and Piñon Juniper/Grass Mountain.
Escondida/ Limestone Hills CP-4 (Pinon Juniper Savannah)	This site would be dominated by the grama grasses followed by curlyleaf muhly. The dominant shrubs would include rhus, mountain mahogany (catclaw mimosa on the south slopes), and yuccas. Piñon and juniper trees are scattered throughout the site but more common on the north slopes would be expected. North and east slopes are expected to be dominated by shrubs, while southwest slopes would have more grass species. There would be some widely scattered rills on steeper slopes with the depth being limited to the limestone subsurface layer. Occasional gullies would be expected and also limited by the limestone bedrock. Bare ground should range between 10 and 18 percent with bare patches less than 8-10 inches in diameter. Larger patches (up to 16 inches) may occur and be associated with shrubs. SHSs for this site would be Grass Mountains, Mixed Shrub Mountain and Piñon Juniper/Grass Mountain.	Limestone Hills of Unit 3	This site is dominated by the grama grasses followed by curlyleaf muhly. The dominant shrubs include rhus, mountain mahogany (catclaw mimosa on the south slopes), and yuccas. Piñon and juniper trees are scattered throughout the site but are more common on the north and east slopes while south and west slopes have more grass species as would be expected. Overall production is low due to lack of precipitation over the last three years. There are some widely scattered rills on steeper slopes and some occasional gullies. Bare ground ranges between 10 and 18 percent with bare patches less than 8-10 inches in diameter. Larger patches (up to 16 inches) occur when associated with shrubs. SHSs are Grass Mountains, Mixed Shrub Mountain and Piñon Juniper/Grass Mountain.
Escondida/ Deep Sand SD-2	This site would be dominated by dropseeds. This site is well suited for forb production and the dominate shrubs would be yucca and sand sage. No rills or gullies would be expected on this site. Bare ground would make up 75 percent of the ground cover. Patches would be less than 20 inches in diameter and discontinuous. Some wind scoured blow outs and depositional areas would be expected because of the large amount of bare ground. SHS would be a Grass Rolling Upland.	Deep Sand of Units 1 and 3.	During high intensity rain storms, there are a few rills that develop at the base of the dunes. Runoff flows off dunes for short distances, briefly ponds in small depressions, then infiltrates into soil. This site is continuously accumulating and composed of shifting deep sand. Bare ground fluctuates with yearly precipitation. There is more mesquite than expected. Black grama is no longer observed on the site. Other herbaceous species are what are expected for the site. Total annual production has not changed but composition of species making up the production has changed slightly (mesquite). SHS is Mesquite Sand Dunes. The potential exist for sand prickly pear cactus and Scheer’s pincushion cactus.
Escondida/ Sandy SD-2	This site would be dominated by black grama followed by dropseeds. This site is well suited for forb production and the dominate shrubs would be yucca and Morman tea. No rills or gullies would be expected on this site. Bare ground would make up 73 percent of the ground cover. Patches would be less than 18 inches in diameter and discontinuous. Some wind scoured blow outs and depositional areas would be expected because of the large amount of bare ground. SHS would be a Grass Rolling Upland. Habitat would be suitable for aplomado falcon.	Sandy of Units 1 and 2	During high intensity rain storms, there are a few rills that develop at the base of the dunes. Runoff flows off dunes for short distances, briefly ponds in small depressions, then infiltrates into soil. This site is continuously accumulating and composed of shifting deep sand. Bare ground fluctuates with yearly precipitation. There is more mesquite than expected. Black grama is no longer observed on the site. Other herbaceous species are what are expected for the site. Total annual production has not changed but composition of species making up the production has changed slightly (mesquite). SHS is Mesquite Sand Dunes. The potential exist for sand prickly pear cactus and Scheer’s pincushion cactus.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
Escondida/ Sandy/Deep Sand SD-2	This site would be dominated by black grama followed by dropseeds. This site is well suited for forb production and the dominate shrubs would be yucca and Morman tea. No rills or gullies would be expected on this site. Bare ground would make up 73 percent of the ground cover. Patches would be less than 18 inches in diameter and discontinuous. Some wind scoured blow outs and depositional areas would be expected because of the large amount of bare ground. SHS would be a Grass Rolling Upland. Habitat would be suitable for aplomado falcon.	Sandy/ Deep Sand of Units 1 and 2.	This site has degraded to mesquite coppice dunes with bare interspaces. The amount of bare ground has increased and patches are larger and connected allowing for movement and deposits of large quantities of soil. Plant composition has drastically changed but has not had a significant effect on infiltration rates. Mesquite dunes contribute to increased runoff. Some interspaces have tendency to form hardpans reducing infiltration. Mesquite has become the dominant species and black grama is no longer observed on the site. Some of the other species of the desired condition are still present. The total annual production has not changed but composition of species making up the production has changed. SHS is Mesquite Sand Dunes. The potential exist for sand prickly pear cactus and Scheer's pincushion cactus. This site has very little potential for aplomado falcon.
Escondida/ Gravelly (arroyo) SD-3	This site is located such that it transports runoff from adjacent sites. This site would be co-dominated by sideoats grama and cane bluestem followed by a mixture of bush muhly, blue grama, Arizona cottontop, and others. Dominant shrubs would include apache plume, skunkbush sumac, and bricklebush. There would be numerous rills forming as a consequence of flooding which occurs frequently with high intensity short duration precipitation events. Gullying would be part of this system due to the high amounts of runoff from adjacent sites during these events. Bare ground would make up 20-30 percent of ground cover with bare ground patch size generally less than 12 inches in diameter. SHS would be Arroyo. This habitat would be critical to neotropical migrants.	Gravelly of Unit 1 East of Sand Tank.	Due to the sites location (mouth of Grapevine Canyon) a tremendous amount of runoff from the upper portions of the watershed flows onto and through this site. Roads are channeling water out of its natural courses. This creates the active alluvial fan. The presence of these roads has a tendency to focus runoff through the site. This reduces infiltration and increases erosion. There is more bare ground than expected. Gullies, although few in number, are deep, narrow arroyos. Creosote has increased in composition while herbaceous species composition has decreased. Composition of black grama is less than creosote
Escondida/ Gravelly/ Gravelly SD-3	This description is for the ridges and slopes above the gullies within the ecological site. They would be co-dominated by creosote, black grama, and bush muhly. Rills and gullies are dependant on topographic position, slope, and rainfall intensity. They are expected to be few, natural, and continuous. Bare ground cover would be 45 percent with patch size being as large as two to three feet. SHS is Mixed Shrub Rolling Upland. Habitat is highly diverse including herbaceous and woody species.	Gravelly/ gravelly of Unit 1	This site is co-dominated by creosote, black grama and bush muhly. There is a higher percent composition of mesquite than expected on the site. There are lots of loose rock and gravel. Area is well covered with vegetation. There is slightly more catclaw than expected. The rills and gullies are dependant on topographic position, slope, and rainfall intensity. They are few, natural, and continuous. Bare ground cover is 45 percent with patch size being as large as two to three feet. SHS is Mixed Shrub Rolling Upland. Habitat is highly diverse including herbaceous and woody species.
Escondida/ Gyp Upland SD-3	This site would be dominated by black grama, gyp grama and alkali sacaton. Dominant shrubs would be littleleaf sumac, Morman tea, and fourwing saltbush. There would be a few, scattered and discontinuous rills and shallow gullies. Bare ground would make up 46 percent of the ground cover with patches generally less than 24 inches in diameter. Larger patches may occur when associated with shrubs. SHS would be Mesquite Rolling Upland.	Gyp Upland of Unit 2	This site is dominated by black grama, gyp grama, and alkali sacaton. Dominant shrubs are littleleaf sumac, Morman tea, and fourwing saltbush. There are a few, scattered and discontinuous rills and shallow gullies. Bare ground makes up 46 percent of the ground cover with patches generally less than 24 inches in diameter. Larger patches may occur when associated with shrubs. SHS is Mesquite Rolling Upland. This site is suitable for aplomado falcons, but no populations are present.
Escondida/ Limestone Hills SD-3 (creosote)	The site would be dominated by creosote and catclaw with slim tridens and black grama being the dominant grasses. Rills would be widely scattered on steeper slopes but quantity and size diminish as slopes decrease. The depth of the rills would be limited by the limestone subsurface layer. There would be occasional gullies present due to the slopes and rock outcrops and would also be limited by the limestone bedrock. Bare ground cover would make up 15-20 percent of the ground cover with bare patches being less than 8-10 inches in diameter. Occasional 12 inch diameter patches may be associated with shrubs. SHS would be Creosote Hills.	Limestone Hills of Unit 3	The site is dominated by creosote and catclaw with slim tridens and black grama being the dominant grasses. There is more creosote and catclaw than expected. Rills are widely scattered on steeper slopes. There are occasional gullies present due to the slopes and rock outcrops. Bare ground cover makes up 15-20 percent of the ground cover with bare patches being less than 8-10 inches in diameter. There are occasional 12 inch diameter patches when associated with shrubs. SHS is Creosote Hills.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
Escondida/ Loamy SD-3	This site would be dominated by tobosa and burro grass followed by black and blue grama. Dominant shrubs would be fourwing saltbush. No rills or gullies would be expected. Bare ground would make up 50 percent of the ground cover with patches being less than 8-10 inches in diameter. SHS would be a Grass Flats. Grassland microsites may be suitable for aplomado falcon.	Loamy of Units 1, 2 and 3 (0-1 percent slopes)	In Loamy sites up slope, gullies have formed and have altered the flow patterns allowing increased amounts and velocities of runoff to reach these lower Loamy sites. Flow patterns on these lower sites have increased where the gullies empty onto the site and decreased outside the influence of the gullies. Bare ground is more than what is expected and is directly related to flow patterns and drought. There is slightly more creosote, tar bush, and mesquite than expected. Grama grasses are not commonly observed. SHS is currently Mixed Shrub but still has large amounts of herbaceous species. Wildlife species are those associated with Grass Flat and Mixed Shrub. This site is suitable for aplomado falcon. Although aplomado falcons are not present, recovery potential exists.
Escondida/ Loamy SD-3	These sites are located higher in the watershed, are slightly steeper and have a slightly different existing condition than those described immediately above but maintain the same desired future condition.	Loamy of Units 1, 2 and 3 (1-3 percent slopes)	Roads have historically been located through this site and were improperly maintained without turnouts. Rills have developed as a result of these roads and livestock trails. Linear flow patterns that are not expected in some areas of this site have developed as a result of these roads and livestock trails. Linear flows cause cutting and subsequent drying of the surrounding areas. Being drier leads to other problems. In some areas, bare ground has increased where runoff channels instead of spreading throughout the site causing the soils on the outer edges to become more arid. A few gullies have developed. However, these gullies, though small in number, can cause major problems for the site. Areas where offsite runoff flows onto the site have expected plant composition and distribution. Areas that do not receive this runoff are much less productive and have less herbaceous and more woody species. These areas change with changes in flow patterns. Creosote and mesquite appear to be invading the site. The grama grasses are not commonly observed. SHS is Creosote/Mixed Shrub due to increase of woody species. Wildlife species are those associated with Creosote/Mixed Shrub. The habitat for aplomado falcon has been degraded and the existing habitat is suitable for night blooming cereus.
Escondida/ Sandhills SD-3	This site is isolated, surrounded by limestone hills, and the source of the sand is unknown. This site would be dominated by a variety of forbs and dropseeds. The dominant shrub would be shinnery oak. A few rills would be expected on the steeper slopes. Bare ground would make up 55 percent of the ground cover and patch size would be less than 20 inches. These patches could vary depending on precipitation. Some blowouts would be expected because of the large amount of bare ground. SHS would be a Grass Rolling Upland.	Sandhills of Unit 1	During high intensity rain storms, there are a few rills that develop at the base of the dunes. Runoff flows off dunes for short distances, briefly ponds in small depressions, then infiltrates into soil. This site is continuously accumulating and composed of shifting deep sand. Bare ground fluctuates with yearly precipitation. There is more mesquite than expected. Black grama is no longer observed on the site. Other herbaceous species are what are expected for the site. Total annual production has not changed but composition of species making up the production has changed slightly (mesquite). SHS is Mesquite Sand Dunes. The potential exist for sand prickly pear cactus and Scheer's pincushion cactus. Site resembles a Grass Sand Hills area and wildlife species present are suited for Grass Sand Hills.
Escondida/ Limestone Hills SD-5	This site would be dominated by high grass canopy with sideoats grama and curly leaf muhly being dominant. Some scattered shrubs and cacti would be expected. There are some widely scattered shallow and discontinuous rills and gullies due to steep slopes. Bare ground should be less than 20 percent with bare ground patches not related to disturbance being less than 12 inches. SHS is expected to be a Grass Hills that is suitable for bald eagle and peregrine falcon. The bald eagles and peregrine falcons will be very sparse Kuenzler's hedgehog cactus, Alamo beardtongue, and gray sibara are the plant special status species that have recorded populations within 50 miles of these sites. Therefore, these plants may have slight potential to exist in similar habitats on these sites.	Limestone Hills in Unit 3	This site is dominated by high grass canopy with sideoats grama and curly leaf muhly being dominant. There are scattered shrubs and cacti. There are widely scattered, shallow, and discontinuous rills and gullies. Bare ground is less than 20 percent and bare ground patches are less than 12 inches. SHS is Grass Hills. The bald eagles and peregrine falcons are sparse. There are no recorded populations of Kuenzler's hedgehog cactus, Alamo beardtongue, and gray sibara Plant production and reproduction do not meet expected values due to drought over the past three to five years. Mule deer populations are only 50 percent of the expected numbers. Causes are unknown.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
Lower McGregor/ Loamy SD-4	This site is located on the landscape such that it receives overland flow from adjacent sites. It would be dominated by tobosa and the dominant shrub would be yucca. Yuccas are extremely scattered, but tend to be much larger in size due to the influence of higher amounts of overland flow. No rills and gullies would be expected. Bare ground would make up 30-35 percent of the ground cover with patches being less than 10-20 inches. SHS would be Grass Flat. This yucca grassland would be suitable for aplomado falcon and black-tailed prairie dog. Numbers for these species would be at their potential. This site becomes suitable habitat for mountain plover in degraded states. Mountain plover potential numbers increase with degraded states.	Loamy in Unit 13,14 and 15	This site is located on the landscape such that it receives overland flow from adjacent sites. Most of this site is in its desired or expected state. However, about 25 percent of this site differs from the expected and these areas coincide with roads and livestock working facilities. The majority of the site is dominated by tobosa and the dominant shrub is yucca. Yuccas are extremely scattered, but tend to be much larger in size due to the influence of higher amounts of overland flow. There are no rills and gullies. Bare ground makes up 30-35 percent of the ground cover with patches being less than 10-20 inches. SHS is Grass Flat. This yucca grassland is suitable for aplomado falcon and black-tailed prairie dog. This site becomes suitable habitat for mountain plover in degraded states. Mountain plover potential numbers increase with degraded states.
Lower McGregor/ Shallow Sandy/Limy SD-4	This site would be dominated by blue and black grama. The dominant shrub would be yucca. Rills and gullies would not be expected on this site. Bare ground would make up 20-30 percent of the ground cover and bare patches would be less than 8-10 inches in diameter. Occasional larger bare patches would be associated with shrubs, ant mounds, and rodent disturbances. SHS would be a Grass Rolling Upland. This habitat would be suitable for aplomado falcons. In degraded states the habitat would become more suitable for mountain plovers. This site is also suited for the grama grass cactus.	Transition Zones between Shallow Sandy and Limy in Units 13 and 15	This site is dominated by blue and black grama. The dominant shrub would be yucca. There are no rills and gullies. Bare ground makes up 20-30 percent of the ground cover and bare patches are less than 8-10 inches in diameter. There are occasional larger bare patches that are associated with shrubs, ant mounds, and rodent disturbances. SHS is Grass Rolling Upland. This habitat is suitable for aplomado falcons. Aplomado falcons are not present, but recovery potential exists.
North Shiloh / Limy SD-4	This site would be dominated by blue grama and the dominant shrub would be yucca. No rills or gullies would be expected on this site. Bare ground would make up 20-30 percent of the ground cover with bare patches being less than 8-10 inches in diameter. Occasional larger diameter patches may be associated with shrubs, ant mounds, and rodent disturbances. SHS would be a Grass Rolling Upland.	Limy of Unit 13 and 14	This site is dominated by blue grama and the dominant shrub would be yucca. There are no rills or gullies. Bare ground makes up 20-30 percent of the ground cover with bare patches being less than 8-10 inches in diameter. There are occasional larger diameter patches associated with shrubs, ant mounds, and rodent disturbances. SHS would be a Grass Rolling Upland. Aplomado falcons are not present, but recovery potential exists.
North Shiloh / Loamy SD-4	This site is located on the landscape such that it receives overland flow from adjacent sites. It would be dominated by tobosa and the dominant shrub would be yucca. Yuccas are extremely scattered, but tend to be much larger in size due to the influence of higher amounts of overland flow. No rills and gullies would be expected. Bare ground would make up 30-35 percent of the ground cover with patches being less than 10-20 inches. SHS would be Grass Flat. This yucca grassland would be suitable for aplomado falcon and black-tailed prairie dog. Numbers for these species would be at their potential. This site becomes suitable habitat for mountain plover in degraded states. Mountain plover potential numbers increase with degraded states.	Loamy in Unit 13 and 14	Most of this site is in its desired or expected state. However, about 25 percent of this site differs from the expected, and these areas coincide with roads and livestock working facilities. The majority of the site is dominated by tobosa and the dominant shrub is yucca. Yuccas are extremely scattered, but tend to be much larger in size due to the influence of higher amounts of overland flow. There are no rills and gullies. Bare ground makes up 30-35 percent of the ground cover with patches being less than 10-20 inches. SHS is Grass Flat. This yucca grassland is suitable for aplomado falcon and black-tailed prairie dog. This site becomes suitable habitat for mountain plover in degraded states. Mountain plover potential numbers increase with degraded states.
North Shiloh / Shallow Sandy SD-4	This site would be dominated by black and blue grama. The dominant shrub would be yucca. Rills and gullies would not be expected on this site. Bare ground would make up 20-30 percent of the ground cover and bare patches wuld be less than 8-10 inches in diameter. Occasional larger bare patches would be associated with shrubs, ant mounds, and rodent disturbances. SHS would be a Grass Rolling Upland. This habitat would be suitable for aplomado falcons. In degraded states the habitat would become more suitable for mountain plovers. This site is also suited for the grama grass cactus.	Shallow Sandy Portions of Units 13 and 14	This site is dominated by black and blue grama. The dominant shrub is yucca. There are no rills and gullies. Bare ground makes up 20-30 percent of the ground cover and bare patches are less than 8-10 inches in diameter. There are occasional larger bare patches associated with shrubs, ant mounds, and rodent disturbances. SHS is a Grass Rolling Upland. Aplomado falcons are not present, but recovery potential exists.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
North Shiloh / Shallow Sandy/Limy SD-4	This site would be dominated by blue and black grama. The dominant shrub would be yucca. Rills and gullies would not be expected on this site. Bare ground would make up 20-30 percent of the ground cover and bare patches whould be less than 8-10 inches in diameter. Occasional larger bare patches would be associated with shrubs, ant mounds, and rodent disturbances. SHS would be a Grass Rolling Upland. This habitat would be suitable for aplomado falcons. In degraded states the habitat would become more suitable for mountain plovers. This site is also suited for the grama grass cactus.	Transition Zones between Shallow Sandy and Limy in Units 9, 12 and 13	This site is dominated by blue and black grama. The dominant shrub would be yucca. There are no rills and gullies. Bare ground makes up 20-30 percent of the ground cover and bare patches are less than 8-10 inches in diameter. There are occasional larger bare patches that are associated with shrubs, ant mounds, and rodent disturbances. SHS is a Grass Rolling Upland. This habitat is suitable for aplomado falcons. Aplomado falcons are not present, but recovery potential exists.
North Shiloh / Limestone Hills SD-5	This site would be dominated by high grass canopy with sideoats grama and curly leaf muhly being dominant. Some scattered shrubs and cacti would be expected. Some widely scattered, shallow, and discontinuous rills and gullies due to steep slopes. Bare ground should be less than 20 percent with bare ground patches not related to disturbance being less than 12 inches. SHS is expected to be a Grass Hills that is suitable for bald eagle and peregrine falcon. The bald eagles and peregrine falcons will be very sparse. Kuenzler's hedgehog cactus, Alamo beardtongue, and gray sibara are the plant special status species that have recorded populations within 50 miles of these sites. Therefore, these plants may have slight potential to exist in similar habitats on these sites.	Limestone Hills in Units 13 and 14	This site is dominated by high grass canopy with sideoats grama and curly leaf muhly being dominant. There are scattered shrubs and cacti. There are widely scattered, shallow, and discontinuous rills and gullies. Bare ground is less than 20 percent and bare ground patches are less than 12 inches. SHS is Grass. The bald eagles and peregrine falcons are sparse. There are no recorded populations of Kuenzler's hedgehog cactus, Alamo beardtongue, and gray sibara Plant production and reproduction do not meet expected values due to drought over the past three to five years. Mule deer populations are only 50 percent of the expected numbers. Causes are unknown.
Orogrande / Gravelly/ Gravelly SD-3	This description is for the ridges and slopes above the gullies within the ecological site. They would be co-dominated by creosote, black grama, and bush muhly. Rills and gullies are dependant on topographic position, slope, and rainfall intensity. They are expected to be few, natural, and continuous. Bare ground cover would be 45 percent with patch size being as large as two to three feet. SHS is Mixed Shrub Rolling Upland. Habitat is highly diverse including herbaceous and woody species.	Gravelly/ gravelly of Unit 1	This site is co-dominated by creosote, black grama, and bush muhly. There is a higher percent composition of mesquite than expected on the site. There are lots of loose rock and gravel. Area is well covered with vegetation. There is slightly more catclaw than expected. The rills and gullies are dependant on topographic position, slope, and rainfall intensity. They are few, natural, and continuous. Bare ground cover is 45 percent with patch size being as large as two to three feet. SHS is Mixed Shrub Rolling Upland. Habitat is highly diverse including herbaceous and woody species.
Sacramento/ Limestone Hills CP-4	This site would be dominated by the grama grasses followed by curlyleaf muhly. The dominant shrubs would be rhus, mountain mahogany (catclaw mimosa on the south slopes), and yuccas. North and east slopes are expected to be dominated by shrubs while south and west slopes would have more grass species. There would be some widely scattered rills on steeper slopes with the depth being limited to the limestone subsurface layer. Occasional gullies would be expected and also limited by the limestone bedrock. Bare ground should range between 10 and 18 percent with bare patches less than 8-10 inches in diameter. Larger patches (up to 16 inches) may occur and associated with shrubs. SHSs for this site would be Grass Mountains, Mixed Shrub Mountain and Piñon Juniper/Grass Mountain.	Limestone Hills of Unit 8	This site is dominated by the grama grasses followed by curlyleaf muhly. The dominant shrubs are rhus, mountain mahogany (catclaw mimosa on the south slopes), and yuccas. North and east slopes are dominated by shrubs while south and west slopes have more grass species. Overall production is low due to lack of precipitation over the last three years. There are some widely scattered rills on steeper slopes. There are occasional gullies. Bare ground ranges between 10 and 18 percent with bare patches less than 8-10 inches in diameter. Larger patches (up to 16 inches) occur when associated with shrubs. SHSs are Grass Mountains, Mixed Shrub Mountain and Piñon Juniper/Grass Mountain.

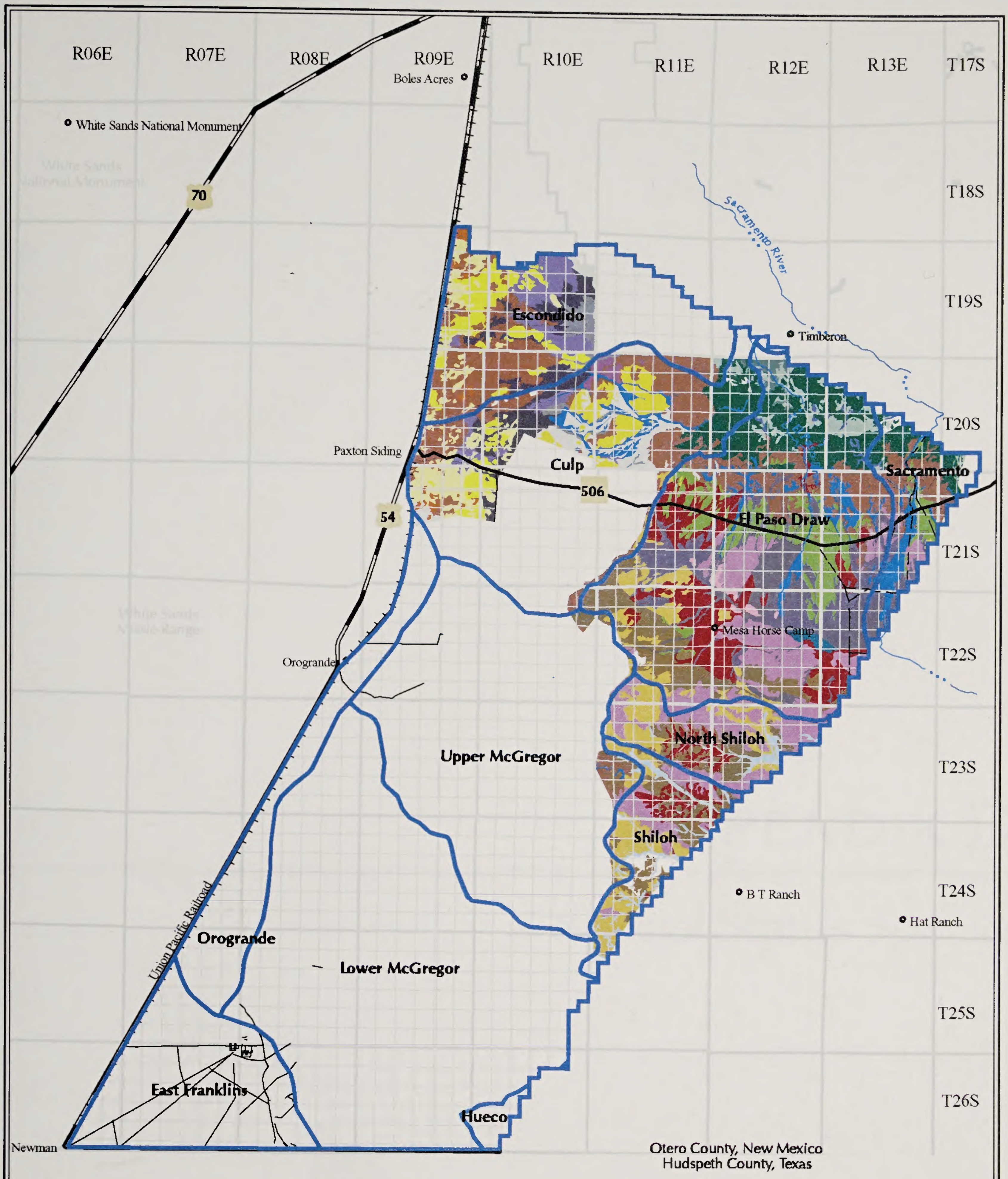
Desired Future Conditions [1]		Existing Conditions	
Watershed / Ecological Site		Location Description	
Sacramento/ Limestone Hills CP-4 (Pinon Juniper Savannah)	This site would be dominated by the grama grasses followed by curlyleaf muhly. The dominant shrubs would include rhus, mountain mahogany (catclaw mimosa on the south slopes), and yuccas. Piñon and juniper trees are scattered throughout the site but more common on the north slopes would be expected. North and east slopes are expected to be dominated by shrubs while south west slopes would have more grass species. There would bee some widely scattered rills on steeper slopes with the depth being limited to the limestone subsurface layer. Occasional gullies would be expected and also limited by the limestone bedrock. Bare ground should range between 10 and 18 percent with bare patches less than 8-10 inches in diameter. Larger patches (up to 16 inches) may occur and be associated with shrubs. SHS for this site would be Grass Mountains, Mixed Shrub Mountain and Piñon Juniper/Grass Mountain.	Limestone Hills of Unit 8	This site is dominated by the grama grasses followed by curlyleaf muhly. The dominant shrubs include rhus, mountain mahogany (catclaw mimosa on the south slopes), and yuccas. Piñon and juniper trees are scattered throughout the site but are more common on the north and east slopes while south and west slopes have more grass species as would be expected. Overall production is low due to lack of precipitation over the last three years. There are some widely scattered rills on steeper slopes and some occasional gullies. Bare ground ranges between 10 and 18 percent with bare patches less than 8-10 inches in diameter. Larger patches (up to 16 inches) occur when associated with shrubs. SHS are Grass Mountains, Mixed Shrub Mountain and Piñon Juniper/Grass Mountain.
Sacramento/ Loamy CP-4	This site would be co-dominated by black grama and tobosa followed by blue grama. The dominant shrubs would include yuccas and fourwing saltbush. There would be no rills or gullies expected on this site. Bare ground would make up 30-35 percent of the ground cover with patch sizes being less 8-10 inches in diameter. SHS would a Grass Flat.	Loamy of Unit 8	Density of piñon and juniper has increased, causing a decrease of grass species beneath the heavy canopy. This has caused an increase in bare ground patches which has increased the number and extent of rills over what is expected for the site. Beneath dense piñon and juniper canopy, the herbaceous cover has been reduced and replaced with litter from the piñon and juniper. Gullies are still not occurring on the side slopes but some are forming in the deeper, loamy soils in the bottoms. Anticipated causes may be the increase in piñon and juniper, past and present roads, other improvements, and grazing. Present day and historical grazing patterns in bottoms have reduced stubble height and cover accelerating formation of gullies. In the functional/structural groups there are more woody species and less herbaceous species than expected, however, the present die-off of piñon may be a naturally occurring cycle and may be causing a return to the expected species composition.
Sacramento/ Limestone Hills SD-3 (creosote)	The site would be dominated by creosote and catclaw with slim tridens and black grama being the dominant grasses. Rills would be widely scattered on steeper slopes but quantity and size diminish as slopes decrease. The depth of the rills would be limited by the limestone subsurface layer. There would be occasional gullies present due to the slopes and rock outcrops and would also be limited by the limestone bedrock. Bare ground cover would make up 15-20 percent of the ground cover with bare patches being less than 8-10 inches in diameter. Occasional 12 inches diameter patches may be associated with shrubs. SHS would be Creosote Hills.	Limestone Hills of Unit 8	The site is dominated by creosote and catclaw with slim tridens and black grama being the dominant grasses. There is more creosote and catclaw than expected. Rills are widely scattered on steeper slopes. There are occasional gullies present due to the slopes and rock outcrops. Bare ground cover makes up 15-20 percent of the ground cover with bare patches being less than 8-10 inches in diameter. There are occasional 12 inch diameter patches when associated with shrubs. SHS is Creosote Hills.
Sacramento/ Draw SD-4	This site is located such that it transports runoff from adjacent sites. This site would be co-dominated by sideoats grama and cane bluestem followed by a mixture of bush muhly, blue grama, Arizona cottontop and others. Dominant shrubs would include apache plume, skunkbush sumac and bricklebush. There would be numerous rills forming as a consequence of flooding which occurs frequently with high intensity short duration precipitation events. Gullying would be part of this system due to the high amounts of runoff from adjacent sites during these events. Bare ground would make up 20-30 percent of ground cover with bare ground patch size generally less than 12 inches in diameter. SHS would be Arroyo.	Sacramento River in Unit 8	This site is co-dominated by sideoats grama and cane bluestem followed by a mixture of bush muhly, blue grama, Arizona cottontop, and others. Dominant shrubs include apache plume, skunkbush sumac, and bricklebush. There are numerous rills forming as a consequence of flooding, which occurs frequently with high intensity short duration precipitation events. Gullying is part of this system due to the high amounts of runoff from adjacent sites during these events. Bare ground makes up 20-30 percent of ground cover with bare ground patch size generally less than 12 inches in diameter. SHS is Arroyo.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
Sacramento/ Gravelly SD-4	This site would be dominated by high grass canopy with blue and black gramas being dominant. Some scattered shrubs and cacti would be expected with creosote being the dominant shrub. Some shallow and discontinuous rills may be present but gullies are not expected. Bare ground should be less that 35 percent with bare ground patches not related to disturbance being less than 24 inches. SHS is expected to be a Grass Rolling Upland that is suitable for bald eagle and aplomado falcon. The grama grass cactus may be found on this site.	Gravelly of Unit 8	The site is dominated by high grass canopy with black and blue grama being dominant. There are scattered shrubs and cacti but creosote composition is higher than expected. Rills are slightly more abundant and deeper than expected with some gullies being present. Bare ground is slightly greater and 35 percent and some bare ground patches slightly exceed 24 inches. SHS is Grass Rolling Upland but tending toward Creosote Rolling Upland because of the increase in creosote composition. Bald eagles occasionally migrate through the site, but there are no resident populations of aplomado falcon.
Sacramento/ Loamy SD-4	This site is located on the landscape such that it receives overland flow from adjacent sites. It would be dominated by tobosa and the dominant shrub would be yucca. Yuccas are extremely scattered, but tend to be much larger in size due to the influence of higher amounts of overland flow. No rills and gullies would be expected. Bare ground would make up 30-35 percent of the ground cover with patches being less than 10-20 inches. SHS would be Grass Flat. This yucca grassland would be suitable for aplomado falcon and black-tailed prairie dog. Numbers for these species would be at their potential. This site becomes suitable habitat for mountain plover in degraded states. Mountain plover potential numbers increase with degraded states.	Loamy in Units 8	Most of this site is in its desired or expected state. However, about 25 percent of this site differs from the expected and these areas coincide with roads and livestock working facilities. The majority of the site is dominated by tobosa and the dominant shrub is yucca. Yuccas are extremely scattered, but tend to be much larger in size due to the influence of higher amounts of overland flow. There are no rills and gullies. Bare ground makes up 30-35 percent of the ground cover with patches being less than 10-20 inches. SHS is Grass Flat. This yucca grassland is suitable for aplomado falcon and black-tailed prairie dog. This site becomes suitable habitat for mountain plover in degraded states. Mountain plover potential numbers increase with degraded states.
Sacramento/ Shallow Sandy SD-4	This site would be dominated by black and blue grama. The dominant shrub would be yucca. Rills and gullies would not be expected on this site. Bare ground would make up 20-30 percent of the ground cover and bare patches would be less than 8-10 inches in diameter. Occasional larger bare patches would be associated with shrubs, ant mounds, and rodent disturbances. SHS would be a Grass Rolling Upland. This habitat would be suitable for aploamdo falcons. In degraded states the habitat would become more suitable for mountain plovers. This site is also suited for the grama grass cactus.	Shallow Sandy Portions of Units 8	Some of these sites have a higher percentage of creosote than the more southern sites, as per 1997 data. These areas are in less than satisfactory condition, potentially causing pronghorn numbers to be slightly less than expected. The remainder of sites are dominated by black and blue grama. The dominant shrub is yucca. There are no rills and gullies. Bare ground makes up 20-30 percent of the ground cover and bare patches are less than 8-10 inches in diameter. There are occasional larger bare patches associated with shrubs, ant mounds, and rodent disturbances. SHS is a Grass Rolling Upland. Aplomado falcons are not present, but recovery potential exists.
Sacramento/ Limestone Hills SD-5	This site would be dominated by high grass canopy with sideoats grama and curly leaf muhly being dominant. Some scattered shrubs and cacti would be expected. There are some widely scattered, shallow, and discontinuous rills and gullies due to steep slopes. Bare ground should be less than 20 percent with bare ground patches not related to disturbance being less than 12 inches. SHS is expected to be a Grass Hills that is suitable for bald eagle and peregrine falcon. The bald eagles and peregrine falcons will be very sparse Kuenzler's hedgehog cactus, Alamo beardtongue, and gray sibara are the plant special status species that have recorded populations within 50 miles of these sites. Therefore, these plants may have slight potential to exist in similar habitats on these sites.	Limestone Hills of Unit 8	This site is dominated by high grass canopy with sideoats grama and curly leaf muhly being dominant. There are scattered shrubs and cacti. There are widely scattered, shallow, and discontinuous rills and gullies. Bare ground is less than 20 percent and bare ground patches are less than 12 inches. SHS is Grass. The bald eagles and peregrine falcons are sparse. There are no recorded populations of Kuenzler's hedgehog cactus, Alamo beardtongue, and gray sibara. Plant production and reproduction do not meet expected values due to drought over the past three to five years. Mule deer populations are only 50 percent of the expected numbers. Causes are unknown.
Sacramento/ Limestone Hills SD-5 (South)	This site would be dominated by high grass canopy with Warnock's grama and New Mexico feather grass being dominant. Some scattered shrubs and cacti would be expected. There are some widely scattered, shallow, and discontinuous rills and gullies due to steep slopes. Bare ground should be less than 50 percent with bare ground patches not related to disturbance being less than 36 inches. SHS is expected to be a Grass Hills that is minimally suitable for aplomado falcon.	Limestone Hills of Unit 8	This site is dominated by high grass canopy with Warnock's grama and New Mexico feather grass being dominant. There are scattered shrubs and cacti. There are widely scattered, shallow, and discontinuous rills and gullies. Bare ground is less than 50 percent with bare ground patches not related to disturbance being less than 36 inches. SHS is Grass Hills. There are no resident populations of aplomado falcon. Mule deer populations are only 25 percent of the expected numbers. Causes are unknown.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
Shiloh / Limy SD-4	This site would be dominated by blue grama and the dominant shrub would be yucca. No rills or gullies would be expected on this site. Bare ground would make up 20-30 percent of the ground cover with bare patches being less than 8-10 inches in diameter. Occasional larger diameter patches may be associated with shrubs, ant mounds, and rodent disturbances. SHS would be a Grass Rolling Upland.	Limy of Unit 13, 14 and 15	This site is dominated by blue grama and the dominant shrub would be yucca. There are no rills or gullies. Bare ground makes up 20-30 percent of the ground cover with bare patches being less than 8-10 inches in diameter. There are occasional larger diameter patches associated with shrubs, ant mounds, and rodent disturbances. SHS would be a Grass Rolling Upland. Aplomado falcons are not present, but recovery potential exists.
Shiloh/ Loamy SD-4	This site is located on the landscape such that it receives overland flow from adjacent sites. It would be dominated by tobosa and the dominant shrub would be yucca. Yuccas are extremely scattered, but tend to be much larger in size due to the influence of higher amounts of overland flow. No rills and gullies would be expected. Bare ground would make up 30-35 percent of the ground cover with patches being less than 10-20 inches. SHS would be Grass Flat. This yucca grassland would be suitable for aplomado falcon and black-tailed prairie dog. Numbers for these species would be at their potential. This site becomes suitable habitat for mountain plover in degraded states. Mountain plover potential numbers increase with degraded states.	Loamy in Units 13, 14, and 15	Most of this site is in its desired or expected state. However, about 25 percent of this site differs from the expected and these areas coincide with roads and livestock working facilities. The majority of the site is dominated by tobosa and the dominant shrub is yucca. Yuccas are extremely scattered but tend to be much larger in size due to the influence of higher amounts of overland flow. There are no rills and gullies. Bare ground makes up 30-35 percent of the ground cover with patches being less than 10-20 inches. SHS is Grass Flat. This yucca grassland is suitable for aplomado falcon and black-tailed prairie dog. This site becomes suitable habitat for mountain plover in degraded states. Mountain plover potential numbers increase with degraded states.
Shiloh/ Shallow Sandy SD-4	This site would be dominated by black and blue grama. The dominant shrub would be yucca. Rills and gullies would not be expected on this site. Bare ground would make up 20-30 percent of the ground cover and bare patches would be less than 8-10 inches in diameter. Occasional larger bare patches would be associated with shrubs, ant mounds, and rodent disturbances. SHS would be a Grass Rolling Upland. This habitat would be suitable for aplomado falcons. In degraded states the habitat would become more suitable for mountain plovers. This site is also suited for the grama grass cactus.	Shallow Sandy Portions of Units 13 and 14	This sites is dominated by black and blue grama. The dominant shrub is yucca. There are no rills and gullies. Bare ground makes up 20-30 percent of the ground cover and bare patches are less than 8-10 inches in diameter. There are occasional larger bare patches associated with shrubs, ant mounds, and rodent disturbances. SHS is a Grass Rolling Upland. Aplomado falcons are not present, but recovery potential exists.
Shiloh / Shallow Sandy/Limy SD-4	This site would be dominated by blue and black grama. The dominant shrub would be yucca. Rills and gullies would not be expected on this site. Bare ground would make up 20-30 percent of the ground cover and bare patches would be less than 8-10 inches in diameter. Occasional larger bare patches would be associated with shrubs, ant mounds, and rodent disturbances. SHS would be a Grass Rolling Upland. This habitat would be suitable for aplomado falcons. In degraded states the habitat would become more suitable for mountain plovers. This site is also suited for the grama grass cactus.	Transition Zones between Shallow Sandy and Limy in Units 13 and 15	This site is dominated by blue and black grama. The dominant shrub would be yucca. There are no rills and gullies. Bare ground makes up 20-30 percent of the ground cover and bare patches are less than 8-10 inches in diameter. There are occasional larger bare patches that are associated with shrubs, ant mounds, and rodent disturbances. SHS is a Grass Rolling Upland. This habitat is suitable for aplomado falcons. Aplomado falcons are not present, but recovery potential exists.
Shiloh/ Limestone Hills SD-5	This site would be dominated by high grass canopy with sideoats grama and curly leaf muhly being dominant. Some scattered shrubs and cacti would be expected. Some widely scattered, shallow, and discontinuous rills and gullies due to steep slopes. Bare ground should be less than 20 percent with bare ground patches not related to disturbance being less than 12 inches. SHS is expected to be a Grass Hills that is suitable for bald eagle and peregrine falcon. The bald eagles and peregrine falcons will be very sparse. Kuenzler's hedgehog cactus, Alamo beardtongue, and gray sibara are the plant special status species that have recorded populations within 50 miles of these sites. Therefore, these plants may have slight potential to exist in similar habitats on these sites.	Limestone Hills of Unit 13	This site is dominated by high grass canopy with sideoats grama and curly leaf muhly being dominant. There are scattered shrubs and cacti. There are widely scattered, shallow, and discontinuous rills and gullies. Bare ground is less than 20 percent and bare ground patches are less than 12 inches. SHS is Grass. The bald eagles and peregrine falcons are sparse. There are no recorded populations of Kuenzler's hedgehog cactus, Alamo beardtongue, and gray sibara. Plant production and reproduction do not meet expected values due to drought over the past three to five years. Mule deer populations are only 50 percent of the expected numbers. Causes are unknown.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
Shiloh/ Limestone Hills SD-5 (South)	This site would be dominated by high grass canopy with Warnock's grama and New Mexico feather grass being dominant. Some scattered shrubs and cacti would be expected. Some widely scattered, shallow, and discontinuous rills and gullies due to steep slopes. Bare ground should be less than 50 percent with bare ground patches not related to disturbance being less than 36 inches. SHS is expected to be a Grass Hills that is minimally suitable for aplomado falcon.	Limestone Hills of Units 13, 14 and 15	This site is dominated by high grass canopy with Warnock's grama and New Mexico feather grass being dominant. There are scattered shrubs and cacti. There are widely scattered, shallow, and discontinuous rills and gullies. Bare ground is less than 50 percent with bare ground patches not related to disturbance being less than 36 inches. SHS is Grass Hills. There are no resident populations of aplomado falcon.
Upper McGregor/ Limestone Hills SD-3 (creosote)	The site would be dominated by creosote and catclaw with slim tridens and black grama being the dominant grasses. Rills would be widely scattered on steeper slopes but quantity and size diminish as slopes decrease. The depth of the rills would be limited by the limestone subsurface layer. There would be occasional gullies present due to the slopes and rock outcrops and would also be limited by the limestone bedrock. Bare ground cover would make up 15-20 percent of the ground cover with bare patches being less than 8-10 inches in diameter. Occasional 12 inch diameter patches may be associated with shrubs. SHS would be Creosote Hills.	Limestone Hills of Unit 13	The site is dominated by creosote and catclaw with slim tridens and black grama being the dominant grasses. There is more creosote and catclaw than expected. Rills are widely scattered on steeper slopes. There are occasional gullies present due to the slopes and rock outcrops. Bare ground cover makes up 15-20 percent of the ground cover with bare patches being less than 8-10 inches in diameter. There are occasional 12 inch diameter patches when associated with shrubs. SHS is Creosote Hills.
Upper McGregor / Draw SD-4	This site is located such that it transports runoff from adjacent sites. This site would be co-dominated by sideoats grama and cane bluestem followed by a mixture of bush muhly, blue grama, Arizona cottontop, and others. Dominant shrubs would include apache plume, skunkbush sumac and bricklebush. There would be numerous rills forming as a consequence of flooding, which occurs frequently with high intensity short duration precipitation events. Gullying would be part of this system due to the high amounts of runoff from adjacent sites during these events. Bare ground would make up 20-30 percent of ground cover with bare ground patch size generally less than 12 inches in diameter. SHS would be Arroyo.	Sacramento River in Unit 13	This site is co-dominated by sideoats grama and cane bluestem followed by a mixture of bush muhly, blue grama, Arizona cottontop, and others. Dominant shrubs include apache plume, skunkbush sumac, and bricklebush. There are numerous rills forming as a consequence of flooding, which occurs frequently with high intensity short duration precipitation events. Gullying is part of this system due to the high amounts of runoff from adjacent sites during these events. Bare ground makes up 20-30 percent of ground cover with bare ground patch size generally less than 12 inches in diameter. SHS is Arroyo.
Upper McGregor / Loamy SD-4	This site is located on the landscape such that it receives overland flow from adjacent sites. It would be dominated by tobosa and the dominant shrub would be yucca. Yuccas are extremely scattered, but tend to be much larger in size due to the influence of higher amounts of overland flow. No rills and gullies would be expected. Bare ground would make up 30-35 percent of the ground cover with patches being less than 10-20 inches. SHS would be Grass Flat. This yucca grassland would be suitable for aplomado falcon and black-tailed prairie dog. Numbers for these species would be at their potential. This site becomes suitable habitat for mountain plover in degraded states. Mountain plover potential numbers increase with degraded states.	Loamy in Units 13 and 15	Most of this site is in its desired or expected state. However, about 25 percent of this site differs from the expected and these areas coincide with roads and livestock working facilities. The majority of the site is dominated by tobosa and the dominant shrub is yucca. Yuccas are extremely scattered but tend to be much larger in size due to the influence of higher amounts of overland flow. There are no rills and gullies. Bare ground makes up 30-35 percent of the ground cover with patches being less than 10-20 inches. SHS is Grass Flat. This yucca grassland is suitable for aplomado falcon and black-tailed prairie dog. This site becomes suitable habitat for mountain plover in degraded states. Mountain plover potential numbers increase with degraded states.
Upper McGregor / Shallow Sandy SD-4	This site would be dominated by black and blue grama. The dominant shrub would be yucca. Rills and gullies would not be expected on this site. Bare ground would make up 20-30 percent of the ground cover and bare patches would be less than 8-10 inches in diameter. Occasional larger bare patches would be associated with shrubs, ant mounds, and rodent disturbances. SHS would be a Grass Rolling Upland. This habitat would be suitable for aplomado falcons. In degraded states the habitat would become more suitable for mountain plovers. This site is also suited for the grama grass cactus.	Shallow Sandy Portions of Units 13	Some of these sites have a higher percentage of creosote than the more southern sites, as per 1997 data. These areas are in less than satisfactory condition, potentially causing pronghorn numbers to be slightly less than expected. The remainder of sites are dominated by black and blue grama. The dominant shrub is yucca. There are no rills and gullies. Bare ground makes up 20-30 percent of the ground cover and bare patches are less than 8-10 inches in diameter. There are occasional larger bare patches associated with shrubs, ant mounds, and rodent disturbances. SHS is a Grass Rolling Upland. Aplomado falcons are not present, but recovery potential exists.

Desired Future Conditions [1]		Existing Conditions [2]	
Watershed / Ecological Site		Location Description	
Upper McGregor / Shallow Sandy/Limy SD-4	This site would be dominated by blue and black grama. The dominant shrub would be yucca. Rills and gullies would not be expected on this site. Bare ground would make up 20-30 percent of the ground cover and bare patches would be less than 8-10 inches in diameter. Occasional larger bare patches would be associated with shrubs, ant mounds, and rodent disturbances. SHS would be a Grass Rolling Upland. This habitat would be suitable for aplomado falcons. In degraded states the habitat would become more suitable for mountain plovers. This site is also suited for the grama grass cactus.	Transition Zones between Shallow Sandy and Limy in Units 13 and 15	This site is dominated by blue and black grama. The dominant shrub would be yucca. There are no rills and gullies. Bare ground makes up 20-30 percent of the ground cover and bare patches are less than 8-10 inches in diameter. There are occasional larger bare patches that are associated with shrubs, ant mounds, and rodent disturbances. SHS is a Grass Rolling Upland. This habitat is suitable for aplomado falcons. Aplomado falcons are not present, but recovery potential exists.
Upper McGregor / Limestone Hills SD-5	This site would be dominated by high grass canopy with sideoats grama and curly leaf muhly being dominant. Some scattered shrubs and cacti would be expected. There are some widely scattered, shallow, and discontinuous rills and gullies due to steep slopes. Bare ground should be less than 20 percent with bare ground patches not related to disturbance being less than 12 inches. SHS is expected to be a Grass Hills that is suitable for bald eagle and peregrine falcon. The bald eagles and peregrine falcons will be very sparse. Kuenzler's hedgehog cactus, Alamo beardtongue, and gray sibara are the plant special status species that have recorded populations within 50 miles of these sites. Therefore, these plants may have slight potential to exist in similar habitats on these sites.	Limestone Hills of Unit 13	This site is dominated by high grass canopy with sideoats grama and curly leaf muhly being dominant. There are scattered shrubs and cacti. There are widely scattered, shallow and discontinuous rills and gullies. Bare ground is less than 20 percent and bare ground patches are less than 12 inches. SHS is Grass. The bald eagles and peregrine falcons are sparse. There are no recorded populations of Kuenzler's hedgehog cactus, Alamo beardtongue, and gray sibara. Plant production and reproduction do not meet expected values due to drought over the past 3-5 years. Mule deer populations are only 50 percent of the expected numbers. Causes are unknown.
Upper McGregor / Limestone Hills SD-5 (South)	This site would be dominated by high grass canopy with Warnock's grama and New Mexico feather grass being dominant. Some scattered shrubs and cacti would be expected. There are some widely scattered, shallow, and discontinuous rills and gullies due to steep slopes. Bare ground should be less than 50 percent with bare ground patches not related to disturbance being less than 36 inches. SHS is expected to be a Grass Hills that is minimally suitable for aplomado falcon.	Limestone Hills of Units 13 and 15	This site is dominated by high grass canopy with Warnock's grama and New Mexico feather grass being dominant. There are scattered shrubs and cacti. There are widely scattered, shallow, and discontinuous rills and gullies. Bare ground is less than 50 percent with bare ground patches not related to disturbance being less than 36 inches. SHS is Grass Hills. There are no resident populations of aplomado falcon. Mule deer populations are only 25 percent of the expected numbers. Causes are unknown.


R06E
R07E
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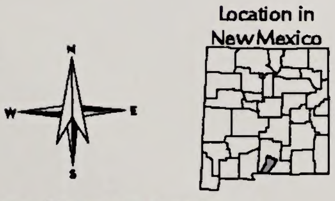
T24S
T25S
T26S
Boles Acres
White Sands National Monument
White Sands National Monument
70
Sacramento River
Timberon
Escondido
Paxton Siding
Culp
506
54
Sacramento
El Paso Draw
Mesa Horse Camp
White Sands Missile Range
Orogrande
North Shiloh
Upper McGregor
Shiloh
B T Ranch
Hat Ranch
Union Pacific Railroad
Orogrande
Lower McGregor
East Franklins
Hueco
Newman
Otero County, New Mexico
Hudspeth County, Texas

Ecological Sites

McGregor Range RMPA/EIS

October 21, 2004


Location in New Mexico
N
W
E
S

Universal Tranverse Mercator
Zone 13, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

SCALE 1 : 500,000

FEET

MILES

Legend:

Ecological Sites:

- ▬ CP4 Limestone Hills
- ▬ CP4 Limestone Hills PJ Sava
- ▬ CP4 Limestone Hills PJ Wood
- ▬ CP4 Loamy
- ▬ SD2 Deep Sand
- ▬ SD2 Sandy
- ▬ SD2 Sandy Deep Sand
- ▬ SD3 Gravelly
- ▬ SD3 Gravelly Gravelly
- ▬ SD3 Gyp Upland
- ▬ SD3 Limestone Hills Creosote
- ▬ SD3 Loamy (0-1)
- ▬ SD3 Loamy (1-3)
- ▬ SD3 Sandhills
- ▬ SD4 Draw
- ▬ SD4 Gravelly
- ▬ SD4 Limy
- ▬ SD4 Loamy
- ▬ SD4 Loamy (North Shiloh)
- ▬ SD4 Loamy (Ponded)
- ▬ SD4 Loamy Sand
- ▬ SD4 Shallow Sandy
- ▬ SD4 Shallow Sandy Limy
- ▬ SD5 Limestone Hills
- ▬ SD5 Limestone Hills (North)
- ▭ Area Not Classified
- ⌇ Hydrologic Basin Boundaries

General Reference:

- ▬ Primary Roads
- — Secondary Roads
- – – County Roads
- — Paved or Military Restricted Roads
- — Public Land Survey System
- ┼ Union Pacific Railroad
- – – Streams
- ● Geographic Place

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. Spatial information may not meet National Map Accuracy Standards. This information may not be updated without notification.

SOURCE: Base Map information: BLM, Las Cruces Field Office, 2001
Ecological Sites: BLM, Las Cruces Field Office, 2001

URS

Map C-1

APPENDIX D

Special Status Species

APPENDIX D

SPECIAL STATUS SPECIES

SPECIAL STATUS PLANT SPECIES

Kuenzler's hedgehog cactus (*Echinocereus fendleri* var. *kuenzleri*)

Status: Federally endangered; State of New Mexico endangered

Description: In the family Cactaceae

Habitat: Between rocks on gently sloping limestone outcrops in piñon-juniper woodlands from 5,800 to 6,600 feet elevation; dense grass cover is essential to species survival.

Occurrence: Low probability of occurrence in the foothills of the Sacramento Mountains but no records confirming its presence there. Although McGregor Range potentially supports habitat suitable for Kuenzler's hedgehog cactus, none have been found during targeted searches for this species and it is not expected to occur.

Alamo beardtongue (*Penstemon alamosensis*)

Status: State of New Mexico species of concern; BLM sensitive

Description: In the family Scrophulariaceae

Habitat: Sheltered rocky areas, canyon sides and bottoms, on limestone; 4,300 to 5,300 feet elevation.

Occurrence: Medium probability of occurrence in the foothills of the Sacramento Mountains to the north and low probability of occurring in the Hueco Mountains to the southeast, but no records confirming its presence. Targeted surveys for this species have failed to find it on McGregor Range.

Grey sibara (*Sibara grisea*)

Status: State of New Mexico species of concern; BLM sensitive

Description: Annual herb in the mustard family (Brassicaceae)

Habitat: Moist soil pockets on steep north-facing limestone slopes and cliffs; interior chaparral to piñon-juniper woodland; 4,500 to 6,000 feet elevation.

Occurrence: Medium probability of occurrence in the foothills of the Sacramento Mountains but no records confirming its presence there.

Sand prickly pear cactus (*Opuntia arenaria*)

Status: State of New Mexico endangered; BLM sensitive

Description: In the family Cactaceae

Habitat: Sandy soils, particularly semi-stabilized coppice dunes of the Chihuahuan desert; associated with Scheer's pincushion cactus in southern New Mexico populations; 3,800 to 4,300 feet elevation.

Occurrence: Low probability of occurrence in the dunes of the Tularosa Valley on the west side of McGregor Range; however, no records confirming its presence there.

Scheer's pincushion cactus (*Coryphantha scheerii* var. *uncinata*)

Status: State of New Mexico endangered; BLM sensitive

Habitat: Chihuahuan desert grassland to Chihuahuan desert scrub, open plains and flats, often in sandy (coppice dunes) or alluvial soils; occasionally on rocky benches or bajadas on limestone or gypsum; 3,000 to 5,000 feet elevation.

Occurrence: Low probability of occurrence in the dunes of the Tularosa Valley on the west side of McGregor Range; however, no records confirming its presence there.

Grama grass cactus (*Toumeya papyracantha*)

Status: BLM sensitive

Description: In the family Cactaceae

Habitat: Valleys and open slopes, 4,000 to 7,000 feet elevation; requires healthy stands of blue and black grama grass, or alkali sacaton; plants associated with alkali sacaton occur on alkaline-gypsum soils.

Occurrence: High probability of occurrence on the Otero Mesa in the east part of McGregor Range; prior to 1992, there were only two records for this species and both were in the grasslands on Otero Mesa (U.S. Army 2000). Known populations on McGregor Range in the central portion of McGregor Range south of New Mexico Highway 506.

Hueco mountain rock daisy (*Perityle huecoensis*)

Status: State of Texas species of concern

Description: Low perennial in the family Asteraceae

Habitat: Crevices in cliffs with north-facing aspects; endemic to Hueco Mountains.

Occurrence: Low probability of occurrence in the Hueco Mountains in the southeast part of McGregor Range; however, no records confirming its presence there. Targeted surveys for this species have failed to locate in on McGregor Range.

Plank's catchfly (*Silene planckii*)

Status: State of New Mexico species of concern; BLM sensitive

Description: Low perennial in the family Caryophyllaceae

Habitat: Steep and rocky outcrops or cliffs with north-facing aspects; 5,000 to 8,000 feet elevation.

Occurrence: Low probability of occurrence in the Hueco Mountains in the southeast part of McGregor Range; however, no records confirming its presence there.

Night blooming cereus (*Peniocereus greggii* var. *greggii*)

Status: State of New Mexico endangered; BLM sensitive

Description: In the family Cactaceae

Habitat: Sandy to silty, gravelly soils on desert floors or rocky hillsides; 1,200 to 4,800 feet elevation; often found with creosote or mesquite.

Occurrence: Low probability of occurrence in the transitional slopes between lowlands to the west of McGregor Range and the Otero Mesa to the east.

SPECIAL STATUS WILDLIFE SPECIES

Texas horned lizard (*Phrynosoma cornutum*)

Status: BLM sensitive

Habitat: Occurs in arid and semiarid open habitats with sparse plant growth. Inhabits sandy areas, both grazed and ungrazed.

Gray-banded kingsnake (*Lampropeltis alterna*)

Status: State of New Mexico Endangered

Habitat: Occurs in arid, semihumid clilmates such as desert flats, canyons, and mountain areas in northern Mexico, through southeastern Texas to the very southeast corner of New Mexico. In New Mexico, the species is known from only a couple of sightings in the Carlsbad Cavern area of Eddy County and southeastern Otero County and has been reported in the McGregor Range area.

Bald eagle (*Haliaeetus leucocephalus*)

Status: Federally threatened; State of New Mexico threatened

Habitat: Occurs in New Mexico mainly as a migrant and a winter resident. Primarily occurs in riparian areas adjacent to rivers, reservoirs, and ponds, and roosts in large trees, which may be close to foraging areas. Other forging habitats include grass flats, rolling uplands, and creosote rolling upland habitats.

Occurrence: Documented to occur in the northeastern part of McGregor Range, wintering in the foothills of the Sacramento Mountains. Surveys conducted by Fort Bliss found no evidence of roosting on McGregor Range.

Ferruginous Hawk (*Buteo regalis*)

Status: BLM sensitive

Habitat: This species breeds over much of central and northern New Mexico and is a rare-to-uncommon winter resident of southern parts of the State. It may hunt in the area during winter migration; however, habitat is largely unsuitable. It breeds in grasslands, open country, plains, and badlands, and feeds on ground squirrels, prairie dogs, rabbits, and a few bird species. Nesting sites include trees, cliffs, rocks, and hillsides; sometimes nests are reused, becoming larger over time. Ferruginous hawks would be expected to occur only during the winter months and during migration.

Northern aplomado falcon (*Falco femoralis septentrionalis*)

Status: Federally endangered; State of New Mexico endangered

Habitat: Desert grasslands with scattered mesquite and yucca, riparian woodlands in open grassland, and among yucca-covered sand ridges in coastal prairies. Uses previously constructed nests located in the saddles of branched yuccas, in mesquites, or on the tops of crucifixion bushes.

Occurrence: This species supposedly extirpated in the United States since the late 1950s. However, a pair of aplomado falcons were observed nesting in Luna County, New Mexico in 2001 and 2002 (Howard 2002, Meyer 2002). There were four verified sightings of aplomado falcon and one unconfirmed sighting in 1997 along the hills immediately west of Otero Mesa on McGregor Range (Placker 2002).

The northern aplomado falcon also has been sighted in northern Mexico, on or adjacent to the White Sands Missile Range, in 1991 and 1992, and on U.S. Highway 380 between Carrizo and San Antonio, New Mexico in 1992 (U.S. Army 1999a; U.S. Army 2000; BLM 1999). No critical habitat has been identified within the United States.

American peregrine falcon (*Falco peregrinus anatum*)

Status: State of New Mexico threatened

Habitat: Nests on steep rocky cliffs, often near water, and often near piñon-juniper habitats; forages near water but also is documented as foraging in most habitat types throughout Sierra and Otero Counties.

Occurrence: Potential nesting habitat exists within the vicinity of the Sacramento Escarpment due to the presence of numerous large cliff faces. An unconfirmed peregrine/prairie falcon hybrid and a prairie falcon attempted nesting on the Otero Mesa escarpment in 1997 (U.S. Army 2000).

Mountain Plover (*Charadrius montanus*)

Status: BLM Sensitive

Habitat: This is a rare migrant that may utilize shortgrass areas for foraging during migration. Most breed in Colorado and Montana, and winter in California (fewer winter in New Mexico). Historically, its breeding range occurred on nearly-denuded prairie dog towns. Mountain plovers are considered to be strongly associated with sites of heaviest grazing pressure, to the point of excessive surface disturbance, such as areas around water troughs.

Long-billed curlew (Numenius americanus)

Status: State of New Mexico endangered; BLM sensitive

Habitat: Breeds in short grass communities; migrates to coastal habitats after breeding season.

Occurrence: One documented occurrence on Otero Mesa in the vicinity of the Mesa Horse Camp.

Common Ground Dove (*Columbina passerina*)

Status: State of New Mexico endangered

Habitat: This species prefers native shrublands and weedy areas at lower elevations, including riparian areas. These include open stands of creosotebush and large succulents. The common ground dove is considered very rare and may occur in arroyo or mesquite sand dune areas.

Western Burrowing Owl (*Athene cunicularia hypugea*)

Status: BLM sensitive

Habitat: This species occurs in desertscrub dominated by mesquite, yucca and cactus and in the expansive open grasslands, prairies, or open areas near human habitation. They typically nest in the abandoned burrows of prairie dogs, ground squirrels, woodchucks, foxes, or badgers.

Mexican spotted owl (*Strix occidentalis lucida*)

Status: Federally threatened

Habitat: Mature montane forest and woodland and shady canyons; uneven-aged stands with high canopy closure, high tree density, multi-layered canopy, and terrain with slopes greater than 15 degrees appear to be key habitat features.

Occurrence: One documented occurrence in the foothills of the Sacramento Mountains in the northeastern part of McGregor Range.

Loggerhead Shrike (*Lanius ludovicianus*)

Status: BLM sensitive

Habitat: Loggerhead shrikes are year-round residents of southern New Mexico utilizing expansive open grasslands, desertscrub (dominated by mesquite, yucca, and cactus), riparian, and lowland wooded areas. Nesting habitat includes small trees and shrubs. Prey items include large insects and occasionally small reptiles and mammals.

Bell's Vireo (*Vireo bellii*)

Status: State of New Mexico threatened

Habitat: Characteristically occurs in New Mexico in dense shrubland or woodland along lowland stream courses, with willow, mesquite, and seepwillow as the characteristic plant species. Prefers dense, low, shrubby vegetation in riparian areas, although arroyo habitats with dense desert willows, and other shrub species may be utilized during migration. Two singing males established territories on McGregor Range in 1995 but no nests were found. One bird was observed in acacia habitat in 1997.

Gray Vireo (*Vireo vicinior*)

Status: State of New Mexico threatened

Habitat: Occurs as a widespread breeding season resident in New Mexico. Found in arid juniper woodlands on foothills and mesas that are often associated with oaks and a well-developed grass cover. This insectivore may occur at elevations of up to 7000 feet and is found in New Mexico only during the warmer months. Potential suitable habitat occurs in the Sacramento Mountains foothills, although this species was not recorded during surveys of piñon-juniper woods in the foothills in 1996 and 1997.

Baird's Sparrow (*Ammodramus bairdii*)

Status: State of New Mexico threatened; BLM sensitive

Habitat: Found in expansive, open grassland, mesquite flats and rolling uplands, salt flats, and arroyos, this species is a migrant in New Mexico and mainly occurs in the eastern plains. Once numerous and widespread in New Mexico, its abundance has declined due to loss of grassland habitat. Surveys on McGregor Range in 1997 reported that preferred habitat included swales on Otero Mesa with low shrub density, and dense, tall growth of tobosa grass along with black and blue grama grass. Baird's sparrow was not observed in areas of heavy grazing, or where there was a dense growth of taller grasses such as dropseed.

Varied Bunting (*Passerina versicolor*)

Status: State of New Mexico threatened

Habitat: Key habitat areas are at the Carlsbad Caverns National Park and Guadalupe Canyon; they are considered vagrants elsewhere. The Varied Bunting is a breeding-season resident of arid thorny brush and thickets, preferring dense stands of mesquite, apache plume and associated growth in arid canyon bottoms.

Fringed Myotis (*Myotis thysanodes*)

Status: BLM sensitive

Habitat: This migratory species occurs over most of the western two-thirds of New Mexico mainly in grasslands but also in mid-elevation desert to coniferous forest. Riparian zones may be important. Maternity and day roost habitat includes rock crevices, caves, mines, and snags. For bats in the southwestern U.S., accessible surface water, suitable roost sites, and food are necessary components of viable habitat.

Gray-footed Chipmunk (*Tamias canipes*)

Status: BLM sensitive

Habitat: Primarily occurs in forests, but also in piñon-juniper and arroyo habitats. Occurs in the foothills of the Sacramento Mountains on McGregor Range.

Arizona black-tailed prairie dog (*Cynomys ludovicianus arizonensis*)

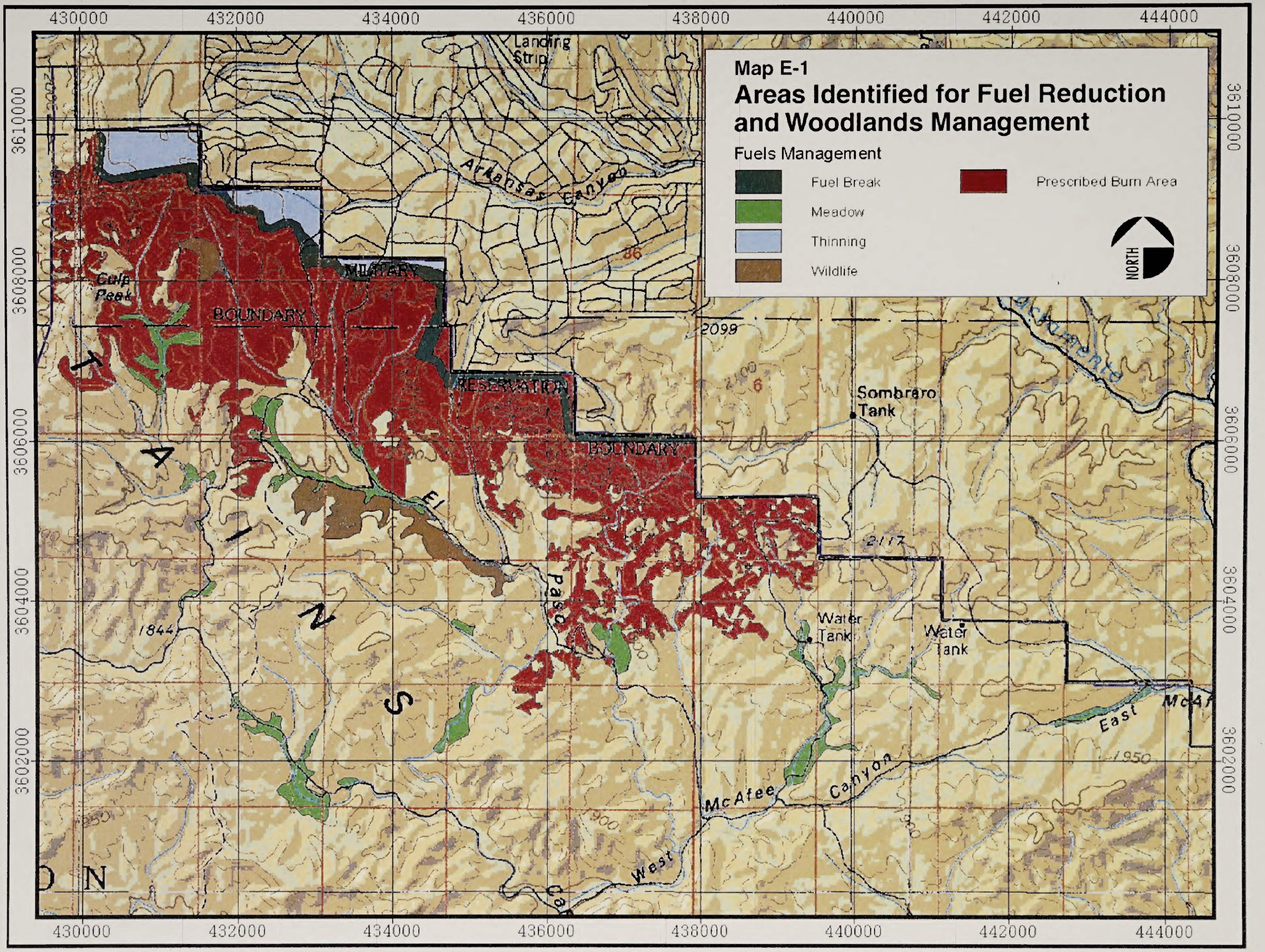
Status: BLM sensitive

Habitat: Flat, dry, open grasslands of flat, dry, open mesa tops or valley bottoms.

Occurrence: Known to occur on McGregor Range and Otero Mesa (U.S. Army 2000).

APPENDIX E

Areas Identified for Fuels Reduction and Woodlands Management



Map E-1
Areas Identified for Fuel Reduction and Woodlands Management

Fuels Management
🟩 Fuel Break
🟩 Meadow
🟦 Thinning
🟫 Wildlife
🟥 Prescribed Burn Area
NORTH
Landing Strip
Arkansas Canyon
86
Culp Peak
BOUNDARY
MILITARY
RESERVATION
BOUNDARY
2099
6
Sombraro Tank
2117
El Paso
Water Tank
Water Tank
1844
East McAf
1950
McAfee Canyon
West
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430000
432000
434000
436000
438000
440000
442000
444000
3610000
3608000
3606000
3604000
3602000

APPENDIX F

Best Management Practices

APPENDIX F

BEST MANAGEMENT PRACTICES

INTRODUCTION

Best management practices (BMPs) are environmentally responsible land management methods that, when applied properly, minimize adverse impacts on the ecosystem, and retain the reclamation potential of the disturbed area while accommodating land-user objectives. The practices represent effective means of accomplishing the management goals and objectives of the Bureau of Land Management (BLM) and are aimed to achieve sustainability through efficiency combined with effective environmental protection and sound resource management. The intent of the BMPs is to promote better stewardship of public land and its resources and should be used as guidance when preparing plans and details that are specific to individual projects.

BMPs may be general and apply nationwide, agency-wide, or regionally, or may be more specific and apply to a particular area or site. BMPs should not be construed as rigid requirements that will be applicable to every situation, but should be flexible enough to respond to new data, technological advances, and market conditions.

General BMP guidance is provided in many of the BLM's manuals and in documents such as the BLM New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (Standards and Guides) completed by BLM in 2001and Surface Operating Standards for Oil and Gas Exploration and Development ("Gold Book") completed by the BLM and Forest Service in 1989. The BLM has developed BMPs that are specific to a resource or land use; for example, BLM New Mexico BMP guidance for land management activities that may influence water quality (Instruction Memorandum No. NM-99-002) and BLM New Mexico State Office Road Policy, Standards, and Procedures (Instruction Memorandum No. NM-95-031). BMPs often are developed for and identified, along with mitigation measures, in project-specific environmental documents and/or construction, operation, and maintenance plans.

While the goals and objectives regarding BMPs are similar in intent, an operator/land user must be responsible for understanding the BLM's responsibilities. Knowledge of the BLM's Resource Management Plan as well as agency operational standards, procedures, and environmental protection requirements will help an operator/land user to meet these standards. Understanding the BMPs and the flexibility in their application are important in selecting BMPs that offer site-specific control of potential effects of activities. There may be more than one correct BMP for reducing or controlling potential effects. Care must be taken to select BMPs that are practical and economical while allowing both multiple use and sustainability.

Unusual situations may arise for which the measures recommended generally by BLM may not suffice. In these cases, common sense is most often the best guide. The operator/land user and BLM working together can develop the most appropriate approach to achieve the management objectives in each situation.

BLM BEST MANAGEMENT PRACTICES

The best management practices described below may apply to any BLM permitted project on withdrawn public land within McGregor Range.

Prior to Surface Disturbance

Activities occurring during preliminary investigations prior to surface disturbance may include flagging and providing engineering consideration of proposed project routes, conducting cultural surveys, and performing special status species surveys. A permit is not required to conduct such preliminary investigations, and are often conducted as a part of the requisite environmental impact assessments. On McGregor Range, most of these investigations would be conducted by BLM personnel or approved contractors.

In general, the BLM requires an examination of resource values and development of appropriate surface protection and reclamation measures prior to the beginning of surface disturbing activities. Management practices specific to wildlife and vegetation resources include the following:

- Prior to surveying/flagging routes during the raptor-breeding season, the project area shall be surveyed for raptor nests. Surveys will be conducted by professional biologists approved by the Authorized Officer. The Universal Transmercator grid (UTM) locations of all raptor nests will be reported to the Authorized Officer. All active raptor nests will be avoided by the required distances described under the Well Sites section. An "active raptor nest" is defined as any raptor or corvid nest being during the current nesting season.
- In areas that constitute occupied or potential aplomado falcon habitat, a protocol survey for this species will be conducted along with the general raptor nest survey described above, prior to surveying/flagging lines during the breeding season.
- During operations at any time, large (greater than 6 feet in height) trees or shrubs containing or capable of containing a raptor nest will be avoided by vehicular traffic or other activities likely to destroy them.
- Time activities to avoid wet periods.
- Occupied habitat for special status species will be avoided in a manner similar to surface use requirements (avoid occupied habitat up to 0.25 miles) unless impacts are adequately mitigated.

Administrative Requirements

The project proponent and its contractors and subcontractors will conduct all operations in full compliance with all applicable Federal, State, and local laws and regulations.

Prior to commencing construction activities, the operator and its contractors and subcontractors may conduct a preconstruction conference with the BLM Authorized Officer. Environmental and safety training will be part of the operator, contractor, and subcontractor training prior to construction. All employees will be familiarized with the resource protection policies of the BLM, requirements, and mitigating measures incorporated into each project.

The Authorized Officer will guide the project during all stages of the project including construction, reclamation, and maintenance.

Surface Use

Roads and Access Ways

The BLM requires the use of existing roads to the maximum extent practical and minimizing new roads in unroaded areas. If existing roads are used/damaged they will be maintained at the appropriate level by the responsible parties. Where new roads are needed, construction, maintenance, rehabilitation, abandonment, and closure of the roads on public land will be in accordance with the BLM Manual 9113 - ROADS, and BLM "Goldbook" Surface Operating Standards for Oil and Gas Exploration and Development, Chapter 3: Surface Use, Roads and Access Ways.

Road Classes

BLM Temporary Roads - These are low volume, single-lane roads built for a specific purpose or use. They normally have a 12-foot-wide travel way and are located, designed, and constructed for temporary use. In many cases they may be constructed with little or no grading or blade use. They are usually built for dry weather use, but may be surfaced, drained, and maintained for all-weather use if the Authorized Officer concurs. Such roads are to be made impassable to vehicle travel and returned to a near natural condition upon completion of use.

BLM Resource Roads - These are low volume, single-lane roads, which may be reclaimed after a particular use terminates. These roads normally have a 12- to 14-foot travel way with intervisible turnouts. They are usually used for dry weather, but may be surfaced, drained, and maintained for all-weather use. These roads connect terminal facilities, such as a well site, to collector, local, arterial, or other higher-class roads. They serve low average daily traffic and are located on the basis of the specific resource activity need rather than travel efficiency. They may be developed for either long- or short-term service and operated either closed or open to use as determined by the Authorized Officer.

BLM Local Roads - These roads may be single- or double-lane with travel ways 12 to 24 feet in width, with intervisible turnouts. They are normally graded, drained, and surfaced and are capable of carrying highway loads. These roads provide access to large areas and for various uses. They collect traffic from resource or local roads or terminal facilities and are connected to arterial roads or public highways. The location and standard are based on both long-term resource needs and travel efficiency. They may be operated for either constant or intermittent service, depending on land use and resource management objectives for the area being served.

BLM Collector Roads - These roads are usually double-lane, graded, drained and surfaced, with a 20- to 24-foot travel way. They serve large land areas and are the major access routes into development areas with high average daily traffic rates. The locations and standards often are determined by a demand for maximum mobility and travel efficiency rather than a specific resource management service. They usually connect with public highways or other arterials to form an integrated network of primary travel routes, and are operated for long-term land and resource management purposes and constant service.

Design Specifications

BLM Temporary Roads

- Design speed is 15 miles per hour or less.
- Travel width is normally 12 feet.
- Recommended minimum horizontal curve radius, 100 feet. Where terrain will not allow 100-foot-curve radii, curve widening is necessary.
- Normal road gradients should not exceed 8 percent except for short pitches of 300 feet or less. In mountainous terrain, grades greater than 8 percent may be allowed, on a case-by-case basis.
- Turnouts are generally naturally occurring, such as additional widths on ridges or other available areas on flat terrain.
- Drainage must be provided over the entire road. Usually this is accomplished by use of drainage-dips, in- or out-sloping, and naturally rolling topography. Ditches and culverts may be required in some situations, but are not expected as the norm.
- Generally, gravel surfacing is not required, but if all-weather access is needed, it may be necessary.

BLM Resource Roads

- Design speed 15 miles per hour.
- Travel way width—minimum 12 feet with turnouts.
- Recommended minimum horizontal curve radius, 100 feet. Where terrain will not allow 100-foot-curve radii, curve widening is necessary.
- Normal road gradients should not exceed 8 percent except for pitch grades (i.e., 300 feet or less in length). In mountainous terrain, grades greater than 8 percent may be possible, on a case-by-case basis.
- Turnouts are required on all single lane roads (travel way of 12 to 14 feet). Turnouts must be located at 1,000-foot intervals or be intervisible, whichever is less.
- Drainage control shall be ensured over the entire road through the use of

drainage dips, in sloping, natural rolling topography, ditch turnouts, or culverts. Culverts, drainage crossings, and other controls should be designed for a 10-year frequency or greater storm, with an allowable head of one foot at the pipe inlet.

- Roadbed culverts should be used to drain inside road ditches when drainage dips are not feasible.
- Surfacing with an appropriate amount of gravel should be required where all weather access is needed.

BLM Local Roads

- Design speed 15 to 25 miles per hour.
- Traveled way minimum 12 feet (single lane), maximum 24 feet (double lane) with intervisible turnouts as may be required.
- Recommended minimum horizontal curve radius 100 feet. Where terrain will not allow 100-foot-curve radii, curve widening is necessary.
- Maximum grades should not exceed 8 percent. Pitch grades for lengths not to exceed 300 feet may be allowed to exceed 8 percent in some cases, to be determined by the BLM.
- All culverts must be sized in accordance with accepted engineering practices and any special environmental concerns. The minimum size culvert in any installation must be 18 inches.
- Turnouts will be required on all single-lane roads. Turnouts must be located at 750-foot intervals or be intervisible, whichever is less. The length should not be less than 100 feet with additional 25-foot transitional tapers at each end.
- Surfacing is required for all weather access. Aggregate size, type, amount, and application method would be specified by the Authorized Officer. Subgrade analysis may be required to determine load-bearing capacities.

BLM Collector Roads

- Design speed 20 miles per hour minimum unless otherwise directed.
- Travel width - minimum 20 feet, maximum 24 feet.
- Minimum horizontal curve radius, 200 feet width unless shorter radius is approved.
- Design vertical curves for a maximum change of 2 percent per 50 feet of road length.
- Maximum grade 8 percent (except pitch grades not exceeding 300 feet in length and 10 percent in grade).
- All culverts would be designed for a minimum 25-year frequency storm with an allowable head of one foot at the pipe inlet. However, the minimum acceptable size culvert diameter is 18 inches. Show all culverts planned to accurate vertical scale on plan profile sheets.

Siting of Range Improvement or Right-of-Way Project Locations

In siting facilities, the following measures must be followed:

- Disturbance will be minimized to existing fences and other improvements.
- Livestock facilities, and wildlife water supplies will be avoided by 0.25 mile.
- Prior to surveying/flagging project locations, routes for roads, and other preliminary activities, during the raptor-breeding season, the project area will be surveyed for raptor nests. Surveys will be conducted by professional biologists approved by the Authorized Officer. All active raptor nests will be avoided during the dates and by the distances listed below. An active raptor nest is defined as any raptor or corvid nest being used during the current nesting season.

Distance:

- Eagle - 0.5 mile
- Peregrine falcon – 0.5 to 4.25 miles
- All other raptor species - 0.25 mile

Timing:

- Peregrine falcon - variable March 1 through October 16
- Aplomado falcon - January 1 through July 31
- All raptor species during observed nest establishment through fledgling

Special stipulations will be applied when necessary, as a result of BLM and U.S. Fish and Wildlife Service consultation.

- In areas that constitute occupied or potential aplomado falcon habitat, a protocol survey for this species will be conducted along with the above general raptor nest survey prior to surveying/flagging locations during the breeding season (January 1 through July 31).
- During operations at any time, large trees or shrubs (greater than 6 feet in height) containing or capable of containing a raptor nest will be avoided by vehicular traffic or other activities likely to destroy them.
- Facilities will be sited to minimize in-channel excavation.
- Sites will be selected that provide topographic and vegetative screening when feasible.
- Projects will not be located within 100-year floodplains.

In constructing the site:

- Tree and vegetation clearing will be limited to the minimum area required.
- Construction activities will be timed to avoid wet periods.
- Above-ground structures will be painted to blend with the natural color of the landscape.
- Power lines will be constructed to standards outlined in the most recent version "Suggested Practices for Raptor Protection on Power Lines" published by the Edison Electric Institute/Raptor Research Foundation, unless otherwise agreed to by the Authorized Officer. The holder is responsible for demonstrating that power pole designs not meeting these standards are raptor safe. Such proof will be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modifications or additions to power line structures constructed under this authorization, should they be necessary to ensure the safety of large perching birds. The modifications and/or additions will be made by the holder without liability or expense to the United States.

Siting of Linear Projects (pipelines, powerlines, etc.)

- Location of pipeline routes will not be adjacent to live watercourses or in proximity to steep hillsides to the extent practical to minimize the risk of silt from construction entering streams.
- Pipelines will be located along, but not in existing linear facilities (other pipelines and roads) to the maximum extent practical. Minimize pipeline crossing of undisturbed areas.
- Uprooted vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered over the project area and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer, except that an earthen berm will be left over the ditch line to allow for settling back to grade.

Maintenance of Projects

Projects must include a plan for maintenance of the structure or location. All projects will be kept in good repair and stable condition, to reduce the potential of erosion and off-site resource impacts.

Livestock Grazing Management

The following are included on McGregor Range grazing contracts as terms and conditions, and are considered to be BMPs for the grazing contractors to follow as appropriate.

Safety

Purchaser, his family, agents, or guests are prohibited from touching, tampering with, or disturbing any shell, shell casing, missile target or components thereof which may be found on the lands covered by this contract. Upon discovery of such items, purchaser will report the discovery to the Fort Bliss Range Developer Office.

Impact Area

Portions of grazing Unit 9 and grazing Unit 13, are an impact area for explosive ordinance and may contain highly dangerous unexploded ordinance. The impact area is identified by a firebreak road with bilingual danger warning signs placed at 200-meter intervals. Entrance into the impact area by purchasers and their representatives is prohibited.

Centennial U.S. Air Force Bombing Range is located in Grazing Units 9 and 13. The Bombing Range is approximately 8 sections and has a perimeter fence that is posted with signs. Portions of Grazing Units 9, 12 and 13 have access restrictions during the week days. This area can be accessed on Friday after 1:00 pm through Sunday evenings. One month during the summer, usually July, the restricted areas are open to access.

Fires

Natural and military caused fires occur on the range. Fire fighting is hazardous and is the responsibility of the US government. Purchasers should report fires that they see to BLM but purchasers must not attempt to control them. The grazing purchaser waives any and all rights of action that might accrue due to damage to persons or property resulting from fires.

Range Improvements

Wells and Pipelines

Rights for water that flows through pipelines from the Sacramento River and Carrizo Springs is retained by Fort Bliss. The BLM will manage the day-to-day use and distribution of the water.

Wells and pipeline systems are maintained by BLM. The BLM will attempt to make repairs as soon as possible.

It will be the purchaser's responsibility to check the troughs and pipelines periodically and to inform BLM if problems are found. To prevent pipeline breaks, freeze-ups, etc., the purchaser will refrain from regulating or tampering with water valves and the pipeline system in any way. Removal of dead animals will be the responsibility of the purchaser.

Fences

All fences will be maintained by the purchaser, except in impact areas. In impact areas, the BLM will maintain the fences. Fences are expected to be maintained by the purchaser at no expense to the government, in as good a condition as when received. In maintenance of the fences, the purchaser is expected to use due care to prevent soil erosion, fire, and other damage.

Cattle Handling Facilities

Corrals, portable chutes, and portable loading ramps are available for purchaser use. They are expected to be maintained by the purchaser in as good a condition as when received. The BLM may supply material for needed repairs.

Purchaser Constructed Range Improvements

The grazing purchaser may construct range improvements necessary for the proper care and management of livestock for which this contract is issued. Authorization will be issued under a Cooperative Agreement. Temporary range improvements must be removed by purchaser within 60 days after his grazing contract has expired or within 60 days of the written notice that the contract has been cancelled for other cause. The purchaser, will restore the area to such condition as existed prior to the improvement. Failure to remove an improvement will result in the improvement being removed by the government at the expense of the purchaser with no claim for damages against the BLM or any agent thereof.

With the approval of BLM, the purchaser may leave authorized improvements intact. The U.S. government will gain title to any permanent improvement authorized to be left on the range.

Removal or Use of Resources on the Range

The awarding of this livestock grazing contract does not allow the purchaser to remove either by mechanical means or manual labor any forage, seed, firewood, trees, soil, sand, gravel, etc., from the McGregor Range. Specific written authorization must be obtained from the BLM for the removal of such material.

Movement of Livestock

Cattle may be moved on or off McGregor Range only during hours authorized by BLM normally between dawn and dusk and only when permission for access is granted by Fort Bliss.

All livestock will be counted on and off the grazing units on McGregor Range by BLM representatives. Unit purchaser must notify the representatives as specified on the contract by telephone or letter at least 3 days prior to moving cattle on or off the range, specifying the time and place on McGregor Range when cattle will be loaded or unloaded.

Holding traps will be used only when cattle are being gathered or worked. Use will be allowed for no more than 1 week at a time. At all other times, traps will not have any cattle or horses in them and gates will be kept closed. Traps are not part of the grazing units.

Dead livestock will be moved at least 300 yards from corrals and watering troughs.

Grazing Management

In order that proper utilization of forage be obtained, BLM reserves the right to designate the periods of time and areas to be grazed within each unit (such as moving cattle to dirt tanks for trampling purposes and placing of supplemental feed and salt). BLM reserves the right to require salt or supplemental feed to be placed away from the waters as needed. If certain areas of a unit show obvious over-utilization, the purchaser may be asked to relocate their cattle to other areas within the unit as specified by BLM. Failure to keep cattle scattered (away from the overgrazed area) may result in an automatic reduction in stocking rate.

The grazing period for the units shown in the Specifications and Bid Schedule will be strictly adhered to. A refund will not be made for animal unit months (AUMs) not utilized.

Purchasers are authorized to remove livestock for a period of 7 days following termination dates as long as AUMs of forage consumed are not in excess of the contracted number of AUMs.

At no time during the term of the contract, will livestock numbers exceed those shown on the bid information sheet, unless written approval is obtained from BLM. With written authorization, purchasers may receive a 15 percent increase in numbers in order to utilize AUMs purchased; however, AUMs of forage utilized may not exceed contracted numbers.

Contractors may be required to remove livestock prior to termination of grazing season in order to insure that utilization does not exceed the AUMs of forage purchase.

Class of Livestock

Those units specified as cattle or yearlings may be stocked with either class of livestock. AUM conversion calculations will be made by the authorized officer.

Cattle:

- Cow with suckling calf that is less than 6 months of age. Suckling calves born on an 8-or 9-month unit will be considered to be less than 6 months of age.
- Suckling calves born prior to the date of arrival on any unit when they have been on the unit for 6 months.
- Weaned animal.

Yearling:

- Weaned animal weighing less than 550 pounds upon entering the unit. The contractor must provide BLM with a written copy of the scale weights to receive the conversion.
- A conversion factor of 1.7 yearlings to 1.0 cow will be allowed on yearlings

  provided, yearling weights do not exceed 550 pounds upon entering McGregor Range.
- If the maximum authorized number of AUMs is exceeded, as a result of calves becoming AUMs, the excess must be removed within 4 nonfiring days upon receipt of written notification.

Adjustment of Livestock Numbers

BLM reserves the right to reduce stocking rate on any unit when it is deemed necessary due to natural disaster, such as fire or drought, or due to obvious over-utilization of forage.

In the event such a reduction in livestock numbers is necessary, the contractor will be given a least 3 weeks notice to arrange for removal of cattle. A refund will be made for AUMs not utilized.

Horse Use

Horse grazing use on the units must be approved by the Authorized Officer. No more than three horses per unit will be allowed. Only saddle horses used for operation of the unit will be authorized. If horses are grazed on the unit, the cattle usage authorized will be reduced by the number of horses grazed.

Unauthorized Use

Unauthorized livestock shall be defined as those animals in excess of authorized numbers or AUMs; animals on a unit prior to or beyond the grazing season dates as specified in the contract; animals remaining on the unit or in a trap beyond the authorized timeframe; animals ear tagged or branded other than with purchasers tag or brand; or animals with a brand which the purchaser has no written authorization to use.

The purchaser will be notified by telephone and in writing by BLM of unauthorized livestock and allowed 4 nonfiring days from such notification to remove the livestock before unauthorized use action shall be initiated.

BLM reserves the right to gather and impound any unauthorized livestock within any grazing unit on McGregor Range. Purchaser shall bear all expenses incurred by BLM including those incurred in gathering, impounding, caring for, and disposing of livestock in cases that necessitate impoundment.

If livestock stray into adjoining units, the purchaser will be notified in writing by BLM and allowed 4 nonfiring days from receipt of such notice to remove livestock before unauthorized use action shall be initiated.

Off Road Vehicle Use

No driving off established roads will be allowed. Any type of livestock gathering or checking away from established roads will be by horseback.

Predator Control

All requests for animal damage control (coyotes) will be made to the APHIS/NMADC Program. APHIS/NMADC will coordinate predator control with Fort Bliss and the BLM.

Violations

The excavation of archaeological sites and gathering of objects of antiquity upon lands subject to this contract is prohibited. Violators will be subject to prosecution with potential fines of up to $10,000 and cancellation of their grazing contract.

Discovery of any archaeological sites or items will be reported to the BLM.

Any purchaser who is convicted of violating, on the McGregor Range, any Federal Endangered Species Rules and Regulations may be subject to prosecution and cancellation of their contract. Endangered species on McGregor Range include but are not limited to eagles.

Contract Termination

The grazing contract may be terminated should the purchaser breach any of the terms or conditions stated herein.

The grazing contract may be terminated after 30 days written notice by the BLM, should Fort

Bliss be assigned new, additional, or different missions which, in the opinion of the Commanding General, Fort Bliss, cannot be accomplished while such grazing contract is in effect.

Any purchaser who is convicted of violating, on the McGregor Range, any Federal endangered species rules and regulations may be subject to prosecution and cancellation of their contract. Endangered species on McGregor Range include but are not limited to eagles.

Noxious Weed Control

See Appendix B for information regarding the management and control of noxious weeds.

Pollution Control and Hazardous Substances Management

- Leaking equipment will be promptly repaired or removed from the site to prevent contamination from spills. Any soil or water that has been contaminated will be placed in appropriate containers and removed from the site. Disposal of vehicle fluids on public lands will not be authorized.
- Use of pesticides and herbicides will comply with applicable Federal and State laws. Prior to use of pesticides, the BLM Authorized Officer will approve a plan for its use.

Interim and Abandonment Stage Reclamation

A reclamation plan will be part of the approval process for all BLM permitted projects. Additional reclamation measures may be required based on the conditions existing at the time of abandonment.

- All surface structures will be removed upon abandonment, relinquishment or termination of use of a facility.
- Proper disposal of debris and other trash and other products will be followed.
- All materials and equipment used in reclamation will be free of noxious weed seeds.
- The areas disturbed will be contoured to the original contour or a contour that blends with the surrounding topography and minimizes erosion. The soil will be free of contaminants and will have adequate depth, texture, and structure to provide for successful vegetation reclamation.
- Activities to re-establish vegetation will be initiated prior to or during the next growing season after abandonment.
- Additional agronomic practices such as imprinting, mulching, and irrigation will be required until reclamation is successful for areas where natural rainfall or other characteristics such as soil depth and structure are expected to limit seedling establishment.
- Vegetation reclamation will be considered successful when healthy, mature perennials are established with a composition and density that closely approximates the surrounding vegetation as prescribed by the BLM, and the reclamation area is free of noxious weeds.
- If necessary after reclamation, a BLM-standard four-strand barbed wire fence will be constructed to exclude livestock for a minimum of two successful growing seasons.
- The project proponent will include a restoration plan for habitat of special status species when the BLM determines it is appropriate. The restoration plan will be developed in consultation with the BLM and approved by the BLM.

The BLM will consider other BMPs on a case-by-case basis depending on their effectiveness, the balancing of increased operating costs versus the benefit to the public and resource values, the availability of less restrictive mitigation alternatives, and other site-specific factors. Examples of typical case-by-case BMPs include, but are not limited to the following:

- Installation of raptor perch avoidance

- Wildlife monitoring
- Seasonal restriction of public vehicular access
- Avoiding placement of production facilities on hilltops and ridgelines
- Screening facilities from view
- Use of common utility or right-of-way corridors

GLOSSARY

GLOSSARY

Acre-foot: The volume (as of irrigation water) that would cover 1 acre to a depth of 1 foot (43,560 cubic feet).

Activity Plan: A detailed and specific plan for managing a single resource program or plan element undertaken as needed to implement the more general resource management plan decisions. An activity plan is prepared for specific areas to reach specific resource management objectives within stated time frames.

Adaptive Management: A systematic process for continually improving management policies and practices by learning, through monitoring and evaluation, of the outcomes of actions over time.

Affected Environment: Surface or subsurface resources (including social and economic elements) within or adjacent to a geographic area that potentially could be affected by a proposed action or plan. The environment of the area to be affected or created by the alternatives under consideration. (40 CFR 1502.15)

Agency: Any federal, state, or county government organization participating with jurisdictional responsibilities.

Air Quality: A measure of the health-related and visual characteristics of the air, often derived from quantitative measurements of the concentrations of specific injurious or contaminating substances.

Air Quality Class I and II Areas: Regions in attainment areas where maintenance of existing good air quality is of high priority. Class I areas are those that have the most stringent degree of protection from future degradation of air quality, such as national parks. Class II areas permit moderate deterioration of existing air quality, such as lands administered by the Bureau of Land Management (BLM).

Allotment (range): A designated area of land available for livestock grazing upon which a specified number and kind of livestock may be grazed under management of an authorized agency.

All-Terrain Vehicle (ATV): A small, amphibious motor vehicle, 42 inches in width or smaller, with wheels or tractor treads for traveling over rough ground, snow, or ice, as well as on water.

Alternative: A combination of management prescriptions applied in amounts and locations to achieve a desired management emphasis as expressed in goals and objectives. One of a number of plans or projects proposed for decision making.

Ambient (air): The surrounding atmospheric conditions to which the general public has access.

Analysis: The examination of existing and/or recommended management needs and their relationships to discover and display the outputs, benefits, effects, and consequences of initiating a proposed action.

Animal Unit Month (AUM): The amount of forage necessary to sustain one cow and one calf (e.g., a 1,000 pound cow and calf) for a period of one month.

Aquifer: A water-bearing rock unit (unconsolidated or bedrock) that will yield water in a usable quantity to a well or spring.

Archaeological Site: A discrete location that provides physical evidence of past human use.

Archaeology: The scientific study of the life and culture of past, especially ancient, peoples, as by excavation of ancient cities, relics, artifacts, etc.

Area of Critical Environmental Concern (ACEC): A BLM designation pertaining to areas where specific management attention is needed to protect and prevent irreparable damage to important historical, cultural, and scenic values, fish or wildlife resources, or other natural systems or processes, or to protect human life and safety from natural hazards.

Arroyo: A term applied in the arid and semiarid regions of the southwestern United States to the small, deep, flat-floored channel or gully of an ephemeral stream or of an intermittent stream usually with vertical or steeply cut banks of unconsolidated material at least 2 feet (60 centimeters) high; it is usually dry, but may be transformed into a temporary watercourse or short-lived torrent after heavy rainfall.

Artifact: A human-made object.

Aspect: The direction in which a slope faces.

Attainment (Air): Designation of a geographical area by the U.S. Environmental Protection Agency (EPA) where the air quality is deemed to be better than the National Ambient Air Quality Standards (NAAQS). This designation is based on the measured ambient criteria pollution data available for the geographic area. Areas where the measured ambient criteria pollution data are worse than the NAAQS are identified as non-attainment. An area can be designated as unclassified when there are insufficient ambient criteria pollutant data for the EPA to form a basis for attainment status.

Basin: A depressed area having no surface outlet (*topographic basin*); a physiographic feature or subsurface structure that is capable of collecting, storing, or discharging water by reason of its shape and the characteristics of its confining material (*water*); a depression in the earth's surface, the lowest part often filled by a lake or pond (*lake basin*); a part of a river or canal widened (*drainage*, *river, stream basin*).

Basin and Range: Topography characterized by a series of tilted fault block mountain ranges and broad intervening basins.

Best Management Practices: Measures or activities that are added to typical operation, construction, or maintenance efforts that help to protect environmental resources by avoiding or minimizing impacts of an action.

Big Game: Large species of wildlife that are hunted (such as elk, deer, pronghorn antelope).

Biodiversity: The variety of life and its processes, and the interrelationships within and among various levels of ecological organization.

Clean Air Act: Federal legislation governing air pollution. The Clean Air Act established National Ambient Air Quality Standards for carbon monoxide, nitrogen oxide, ozone, particulate matter, sulfur dioxide, and lead. Prevention of Significant Deterioration classifications define the allowable increased levels of air quality deterioration above legally established levels include the following:

> Class I – minimal additional deterioration in air quality (certain national parks and wilderness areas)
>
> Class II – moderate additional deterioration in air quality (most lands)
>
> Class III – greater deterioration for planned maximum growth (industrial areas)

Clean Water Act: National environmental law enforced by the U.S. Environmental Protection Agency that regulates water pollution.

Corridor: For purposes of this RMPA/EIS, a wide strip of land within which a proposed linear facility (e.g., pipeline, transmission line) could be located.

Council on Environmental Quality: An advisory council to the President of the United States established by the National Environmental Policy Act of 1969. It reviews Federal programs for their effect on the environment, conducts environmental studies, and advises the president on environmental matters.

Critical Habitat: An area occupied by a threatened or endangered species "on which are found those physical and biological features (1) essential to the conservation of the species, and (2) which may require special management considerations or protection" (16 USC 1532 (5)(A)(I)1988). Unoccupied by suitable habitat for the threatened or endangered species is not automatically included unless such areas are essential for the conservation of the species (50 CFR 424.12(e)).

Cubic Feet Per Second (cfs): As a rate of stream flow, a cubic foot of water passing a reference section in 1 second of time. One cfs flowing for 24 hours will yield 1.983 acre-feet of water.

Cultural Resources: Remains of human activity, occupation, or endeavor, as reflected in districts, sites, buildings, objects, artifacts, ruins, works of art, architecture, and natural features important in human events.

Cumulative Impacts: The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions. Cumulative impacts are evaluated as part of the EIS, and may include consideration of additive or interactive effects regardless of what agency or person undertakes the other actions.

Decision Area: The public land, surface and mineral estate, for which BLM has the authority to make decisions is referred to in this document as BLM's Decision Area.

Developed Recreation: Recreation that requires facilities that, in turn, result in concentrated use of the area. For example, off-road vehicles require parking lots and trails. Campgrounds may have roads, picnic tables, and toilet facilities.

Dispersed Recreation: Recreation that does not occur in a developed recreation site, such as hunting, backpacking, and scenic driving.

Easement: A right afforded a person, agency, or organization to make limited use of another's real property for access or other purposes.

Ecological Site (range): A distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community.

Emission: Effluent discharged into the atmosphere, usually specified by mass per unit time.

Endangered Species: A plant or animal that is in danger of extinction throughout all or a significant portion of its range. Endangered species are rarely identified by the Secretary of the Interior in accordance with the Endangered Species Act of 1973.

Environmental Impact Statement (EIS): A document prepared to analyze the impacts on the environment of a proposed action and released to the public for review and comment. An EIS must meet the requirements of National Environmental Policy Act, Council on Environmental Quality, and the directives of the agency responsible for the proposed action.

Ephemeral (range): A rangeland that does not consistently produce enough forage to sustain a livestock operation but may briefly produce unusual volumes of forage that may be utilized by livestock.

Ephemeral Stream: A stream that flows only in direct response to precipitation, and whose channel is at all times above the water table.

Erosion: The wearing away of the land surface by running water, wind, ice, or other geologic agents and by such processes as gravitation creep.

Escarpment: Steep slope at the edge of a plateau.

Evaporation: Conversion of water from the liquid phase to the gaseous phase.

Exclusion Area: An environmentally sensitive area where rights-of-way should be excluded, and would be granted only in cases where there is a legal requirement to provide such access.

Federal Candidate Species: Sensitive wildlife species currently under consideration for inclusion to the list of Federal threatened or endangered species.

Federal Land Policy and Management Act of 1976 (FLPMA): Public Law 94-570 signed by the President of the United States on October 21, 1976. Established public land policy for management of lands administered by BLM. FLPMA specifies several key directions for the BLM, notably (1) management on the basis of multiple use and sustained yield; (2) land plans prepared to guide management actions; (3) public land management for the protection, development, and enhancement of resources; (4) public land retention in Federal ownership; and (5) public participation in reaching management decisions.

Federal Lands: Lands, or interests in lands (such as easements and rights-of-way), owned by the United States.

Federal Listed Species: Animal or plant species listed by the U.S. Fish and Wildlife Service as threatened or endangered.

Fire Behavior: The manner in which a fire reacts to the influences of fuel, weather, and topography.

Fire Intensity: The effects of fire on the above-ground vegetation generally described in terms of mortality.

Fire Regimes: The characteristics of fire in a given ecosystem, including factors such as frequency, intensity, severity, and patch size. The terms used for the different fire regimes are Nonlethal, Mixed1, Mixed2, and Lethal. Nonlethal fires are generally of lowest intensity and severity with the smallest patches of mortality, while lethal fires are generally of highest intensity and severity with the largest patches of mortality. The others fall in between.

Fire Severity: Fire effects at and below the ground surface. Describes the impacts to organic material on the ground surface, changes to soils, and mortality of below-ground vegetative buds, roots, rhizomes, and other organisms.

Fire Suppression Tactics: The tactical approaches regarding suppression of a wildland fire. These range from Control, Confine, Contain, and Monitor. Control is the most aggressive tactic, while Monitor is the least aggressive tactic.

Fire Use: The combination of wildland fire use and prescribed fire application to meet resource objectives.

Floodplain: Any land area susceptible to being inundated by water from any source. This term typically refers to the 100-year overflow area. The term 100-year flood is used to describe that there is a one percent estimated probability that a flood event will happen in any given year. The 100-year overflow area would be the area affected by a 100-year flood.

Fluid Minerals: In this case, oil, gas, and geothermal resources.

Forage: All browse and herbaceous foods available to grazing animals, which may be grazed or harvested for feeding.

Foreground View: The landscape area visible to an observer within a mile.

Fossil: Any remains, trace, or imprint of a plant or animal that has been preserved by natural processes in the earth's crust since some past geologic time.

Fugitive Dust: Airborne particles emitted from any source other than through a stack or vent.

Game Species: Any species of wildlife or fish that is managed for hunting.

Habitat: A specific set of physical conditions in a geographic area(s) that surrounds a single species, a group of species, or a large community. In wildlife management, the major components of habitat are food, water, cover, and living space.

Habitat Fragmentation: The disruption (by division) of extensive habitats into smaller habitat patches. The effects of habitat fragmentation include loss of habitat area and the creation of smaller, more isolated patches of remaining habitat.

Habitat Management Plan (HMP): A written and officially approved plan for a specific geographical area of public land that identifies wildlife habitat and related objectives, establishes the sequence of actions for achieving objectives, and outlines procedures for evaluating accomplishments.

Habitat Type: An aggregation of all land areas potentially capable of producing similar plant communities at climax.

Hazardous Materials: Substances or mixtures of substances that have the capability of either causing or significantly contributing to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, or posing a substantial present or potential risk to human health or the environment. Hazardous wastes are products or byproducts of hazardous materials. In order to be classified as hazardous, wastes must either appear on a series of lists compiled by the United States Environmental Protection Agency or demonstrate the characteristics of ignitability, corrosivity, reactivity, or toxicity.

Hazardous Waste: The Resource Conservation and Recovery Act defines hazardous waste as a solid waste that may cause an increase in mortality or serious illness or pose a substantial threat to human health and the environment when improperly treated, stored, transported, disposed of, or otherwise managed. A waste is hazardous if it exhibits characteristics of ignitability, corrosivity, reactivity, and/or toxicity.

Historic Site: Archaeological or archivally known sites related to the activities of non-native peoples in the period after the European discovery of the New World (ca. A.D. 1492).

Impact: A modification of the existing environment caused by an action (such as construction or operation of facilities).

Indirect Impacts: Secondary effects that occur in locations other than the initial action or later in time.

Infrastructure: The facilities, services, and equipment needed for a community to function including roads, sewers, water lines, police and fire protection, and schools.

Installation Restoration Program (IRP): A review of military sites to identify the locations and contents of past toxic and hazardous material disposal and spill sites, and to eliminate the hazards to public health in an environmentally responsible manner. The objective of the IRP program is to identify and fully evaluate any areas suspected of being contaminated with hazardous materials remaining from past military actions.

Intermittent Stream: A stream or reach of a stream that is below the local water table for at least some part of the year.

Jurisdiction: The legal right to control or regulate use of land or a facility. Jurisdiction requires authority, but not necessarily ownership.

Land Tenure: The holding of property, including surface and/or mineral estate.

Landscape: An area composed of interacting ecosystems that are repeated because of geology, landform, soils, climate, biota, and human influences throughout the area. Landscapes are generally of a size, shape, and pattern, which is determined by interacting ecosystems.

Landscape Character: Particular attributes, qualities, and traits of a landscape that give it an image and make it identifiable or unique.

Landscape Setting: The context and environment in which a landscape is set; a landscape backdrop.

Leasable Minerals: Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. They include coal, phosphate, asphalt, sulfur, potassium and sodium minerals, and oil, gas, and geothermal.

Lease: An authorization or contract by which one party (lessor) conveys the use of property, such as real estate, to another (lessee) in return for rental payments. In addition to rental payments, lessees also pay royalties (a percentage of value) to the lessor from resource production. Leases are one of three forms of a land use authorization (the others are permits and easements). Leases are used to authorize uses of public land involving substantial construction, development, or land improvement and the investment of large amounts of capital, which are to be amortized over time. A lease conveys a possessory interest and is revocable only in accordance with its terms and applicable regulations. Leases are issued for a term that is consistent with the time required to amortize the capital investment.

Locatable Mineral: Any valuable mineral that is not saleable or leasable including gold, silver, copper, uranium, etc., that may be developed under the General Mining Law of 1872.

Management Situation Analysis: Assessment of the current management direction. It includes a consolidation of existing data needed to analyze and resolve identified issues, a description of current BLM management guidance, and a discussion of existing problems and opportunities for solving them.

Maquilador: The twin-plant concept that uses American manufacturing plants located on both sides of the U.S./Mexico border to take advantage of favorable wage and operating differential costs.

Middleground View: One of the distance zones of a landscape being viewed. This zone extends from the limit of the foreground to 3 to 5 miles from the observer.

Military Lands Withdrawal Act (PL 106-65): The withdrawal of large tracks of public land for military purposes.

Mineral Entry: The location of mining claims by an individual to protect his/her right to a valuable mineral.

Mineral Estate (Mineral Rights): The ownership of minerals, including rights necessary for access, exploration, development, mining, ore dressing, and transportation operations.

Mineral Potential:

- High: Those lands currently producing oil or gas or having high current industry interest.
- Moderate: Those lands, which have had oil and gas shows in favorable geologic environments.
- Low: Those lands where either the geologic environment appears to be favorable for the accumulation of oil and gas, or where little or no information is available to evaluate the oil and gas potential.

Mineral Reserves: Known mineral deposits that are recoverable under present conditions but are as yet undeveloped.

Mineral Rights: Mineral rights outstanding are third-party rights, an interest in minerals not owned by the person or party conveying the land to the United States. It is an exception in a deed that is the result of prior conveyance separating title of certain minerals from the surface estate.

Reserved mineral rights are the retention of ownership of all or part of the mineral rights by a person or party conveying land to the United States. Conditions for the exercising of these rights have been defined in the Secretary of the Interior's "Rules and Regulations to Govern Exercising of Mineral Rights Reserved Conveyance to the United States" attached to and made a part of deeds reserving mineral rights.

Mineral Withdrawal: A withdrawal for public land, which are potentially valuable for leasable minerals. This precludes the disposal of the lands except with a mineral reservation, or unless the lands are found to not be valuable for minerals.

Minority and Low-Income Populations: Identification of communities containing disproportionately high percentages of minority and low-income populations based on the composition of the surrounding community.

Mitigation: The abatement or reduction of an impact on the environment by (1) avoiding a certain action or parts of an action, (2) employing certain construction measures to limit the degree of impact, (3) restoring an area to preconstruction conditions, (4) preserving or maintaining an area throughout the life of a project, (5) replacing or providing substitute resources to the environment or (6) gathering archaeological and paleontological data before disturbance.

Multiple Use: Multiple use as defined by the Multiple Use – Sustained Yield Act 1960 means the management of all the various renewable surface resources so that they are used in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will be given the greatest dollar return or the greatest unit output.

National Ambient Air Quality Standards (NAAQS): The allowable concentrations of air pollutants in the air specified by the Federal government. The air quality standards are divided into primary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public health) and secondary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public welfare) from any unknown or expected adverse effects of air pollutants.

National Environmental Policy Act of 1969 (NEPA): An act that encourages productive and enjoyable harmony between man and his environment and promotes efforts to prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; enriches the understanding or the ecological systems and natural resources important to the Nation, and established the Council on Environmental Quality.

National Register of Historic Places (National Register, NRHP): A listing of architectural, historical, archaeological, and cultural sites of local, state, or national significance. The list of sites was established by the Historic Preservation Act of 1966 and is maintained by the National Park Service.

Noxious Weed: A weed arbitrarily defined by law as being especially undesirable, troublesome, and difficult to control.

Off-Highway Vehicle (OHV): A vehicle (including four-wheel drive, trail bikes, all-terrain vehicles, and snowmobiles but excluding helicopters, fixed-wing aircraft, and boats) capable of traveling off road over land, water, ice, snow, sand, marshes, and other terrain.

Off-Road Vehicle (ORV) Designations

- Closed – Applies to areas and trails where the use of ORVs is permanently or temporarily prohibited. Emergency use of vehicles is allowed.
- Limited – Applies to areas and trails where the use of ORVs is subject to restrictions such as limiting the number or types of vehicles allowed, dates and times of use (seasonal restrictions), limiting use to existing roads and trails, or limiting use to designated roads or trails. Under the designated roads and trails designation, use is allowed only on roads and trails that are signed for use. Combinations of restrictions, such as limiting use to certain types of vehicles during certain times of the year, are possible.
- Open – Applies to areas and trails where ORVs may be operated subject to operating regulations and vehicle standards set forth in BLM Manuals 8341 and 8343.

Paleontology: A science dealing with the life of past geological periods as known from fossil remains.

Patent: A grant made to an individual or group conveying fee simple title to public land.

Perennial Stream: A stream receiving water from both surfaces and underground sources that flows throughout the entire year.

Permit: Permits are one of three forms of a land use authorization (the others are leases and easements). Permits are short-term, revocable authorization to use public land for specific purposes that involve either little or no land improvement, construction, or investment, which can be amortized within the term of the permit. A permit conveys no possessory interest. The permit is renewable at the discretion of the authorized officer and may be revoked in accordance with its terms and applicable regulations.

Physiographic Province: A region, all parts of which are similar in geologic structure and climate and which has consequently had a unified geomorphic history; a region whose pattern of relief features or landforms differs significantly from that of adjacent regions.

Planning Area: In the case of this RMPA/EIS, the area within the boundary of McGregor Range that is inventoried and analyzed for potential impacts. The Planning Area may include land owned or administered by entities other than BLM.

Playa: Ephemeral ponds that are supplied by rainfall runoff and last until evaporation eliminates surface water.

Prehistoric: Archaeological sites resulting from the activities of aboriginal peoples native to this region, and because dating is often difficult, extending up to the reservation era (ca. A.D. 1868).

Prescribed Fire: Fire set intentionally in wild land fuels under prescribed conditions and circumstances. Prescribed fire should be used to mitigate the suppression of natural fires.

Rangeland: Land used for grazing by livestock and big game animals on which vegetation is dominated by grasses, grass-like plants, forbs, or shrubs.

Raptor: Bird of prey with sharp talons and strongly curved beak (e.g., hawk, owl, vulture, eagle).

Reasonably Foreseeable Future Actions: The prediction of the type and amount of oil and gas activity that would occur in a given area. The prediction is based on geologic factors, past history of drilling, projected demand for oil and gas, and industry interest.

Reclamation: The process of converting disturbed land to its former use or other productive uses.

Record of Decision (ROD): A document separate from, but associated with, an EIS that publicly and officially discloses the responsible official's decision on the proposed action.

Recreation Opportunity Spectrum (ROS): A framework for inventory, planning, and management of recreational resources. The ROS allows managers to characterize all possible combinations of recreational opportunities and resources and arrange combinations of activity, settings, and experience opportunities along a continuum.

Recreation and Public Purposes (R&PP) Act: This act authorizes the Secretary of the Interior to lease or convey public land for R&PP, under specified conditions, to states or their political subdivisions and to nonprofit corporations and associations.

Resource Management Plan (RMP): A land use plan that establishes land use allocations, multiple-use guidelines, and management objectives for a given planning area. The RMP planning system has been used by the BLM since 1980.

Right-of-Way: The Federal land authorized to be used or occupied for the construction, operation, maintenance, and termination of a project, pursuant to a right-of-way authorization.

Riparian: Situated on or pertaining to the bank of a river, stream, or other body of water. Normally used to refer to the plants of all types that grow along, around, or in wet areas.

Riparian Habitat: Riparian habitat is defined as an area of land directly influenced by permanent (surface of subsurface) water. They have visible vegetation or physical characteristics reflective of permanent water influence.

Roadless: Refers to the absence of roads constructed and maintained by mechanical means.

Roads: Vehicle routes that are improved and maintained by mechanical means to ensure relatively regular and continuous use. (A way maintained strictly by the passage of vehicles does not constitute a road.)

Saleable Minerals: Minerals that may be sold under the Material Sale Act of 1947, as amended. Included are common varieties of sand, stone, gravel, and clay.

Saline Water: Water containing high concentrations of salt.

Salinity: A measure of the amount of dissolved salts in water.

Scoping: A term used to identify the process for determining the scope of issues related to a proposed action and for identifying significant issues to be addressed in an EIS.

Sediment: Soil or mineral transported by moving water, wind, gravity, or glaciers, and deposited in streams or other bodies of water, or on land.

Sensitive Species: Species not yet officially listed but that are undergoing status review for listing on the U.S. Fish and Wildlife Service official threatened and endangered list; species whose populations are small and widely dispersed or restricted to a few localities; and species whose numbers are declining so rapidly that official listing may be necessary.

Soil Productivity: The capacity of a soil to produce a plant or sequence of plants under a system of management.

Soil Series: A group of soils having genetic horizons (layers) that, except for texture of the surface layer, have similar characteristics and arrangement in profile.

Special Status Species: Wildlife and plant species either Federally listed or proposed for listing as endangered or threatened; state-listed or BLM determined priority species.

Split Estate: Refers to land where the mineral rights and the surface rights are owned by different parties. Owners of the mineral rights generally have a superior right.

Standard Lease Terms and Conditions: Areas may be open to leasing with no specific management decisions defined in a Resource Management Plan; however, these areas are subject to lease terms and conditions as defined on the lease form (Form 3100-11, Offer to Lease and Lease for Oil and Gas; and Form 3200-24, Offer to Lease and Lease for Geothermal Resources).

Sustainability: The ability of an ecosystem to maintain ecological processes and functions, biological diversity, and productivity over time.

Sustained Yield: The achievement and maintenance, in perpetuity, of a high-level annual or regular periodic output of the various renewable resources on public land consistent with multiple use.

Threatened or Endangered Species: Animal or plant species that are listed under the Federal Endangered Species Act of 1973, as amended (federally listed), or under the New Mexico Endangered Species Act (state listed).

Threatened Species: Any animal or plant species likely to become endangered within the foreseeable future throughout all of a significant portion of its range. These species are listed by the U.S. Fish and Wildlife Service.

Total Dissolved Solids: A term that describes the quantity of dissolved material in a sample of material.

Total Suspended Particulates: All particulate matter, typically less than 70 microns in effective diameter.

Transportation Right-of-Way: Land associated with highways and railroads.

Unexploded Ordnance (UXO): Refers to military munitions that have been primed, fused, armed, or otherwise prepared for action, and have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installation, personnel, or material and remain unexploded either by malfunction, design, or any other cause.

Utility Corridor: A linear corridor usually designated for facilities such as power lines, pipelines, fiber optic cables, roads, etc.

Valid Existing Rights: Legal interests that attach a land or mineral estate and cannot be divested from the estate until those interests expire or are relinquished.

Visual Resource Management (VRM): The inventory and planning actions taken to identify visual resource values and to establish objectives for managing those values. Also, management actions taken to achieve the established objectives.

Visual Resource Management Classes: VRM classes identify the visual quality objectives (VQOs) as the degree of acceptable visual change within a particular landscape. A classification is assigned to public land based on guidelines established for scenic quality, visual sensitivity, and visibility.

- VRM Class I – This classification preserves the existing characteristic landscape and allows for natural ecological changes only. Includes Congressionally authorized areas (wilderness) and areas approved through an RMP where landscape modification activities should be restricted.
- VRM Class II – This classification retains the existing characteristic landscape. The level of change in any of the basic landscape elements (form, line, color, texture) due to management activities should be low and not evident.
- VRM Class III – This classification partially retains the existing characteristic landscape. The level of change in any of the basic landscape elements due to management activities may be moderate and evident.
- VRM Class IV – This classification applies to areas where the characteristic landscape has been so disturbed that rehabilitation is needed. Generally considered an interim

short-term classification until rehabilitation or enhancement is completed.

Visual Resources: The visible physical features of a landscape (topography, water, vegetation, animals, structures, and other features) that constitute the scenery of an area.

Visual Sensitivity: Visual sensitivity levels are a measure of public concern for scenic quality and existing or proposed visual change.

Water Table: The surface in a groundwater body where the water pressure is atmospheric. It is the level at which water stands in a well that penetrates the water body just far enough to hold standing water.

Watershed: All land and water within the confines of a drainage divide.

Wetlands: Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. BLM Manual 1737, *Riparian-Wetland Area Management*, includes marshes, shallow swamps, lakeshores, bogs, muskegs, wet meadows, estuaries, and riparian areas as wetlands.

Wilderness Characteristics: Qualities identified by Congress in the Wilderness Act of 1964 including size; naturalness; outstanding opportunities for solitude or a primitive and unconfined type of recreation; and supplemental values such as geological, archaeological, historical, ecological, scenic, or other features.

Wilderness Management Policy: The policy that describes the general objectives, policies, and specific activity guidance applicable to all designated BLM wilderness areas. Specific management objectives, requirements, and decisions that implement administrative practices and visitor activities in individual wilderness areas are developed and described in a wilderness management plan for each unit.

Wilderness Study Area (WSA): An area determined to have wilderness characteristics as described in section 603 of FLPMA and section 2C of the Wilderness Act of 1964 (78 Stat. 891). WSAs are subject to interdisciplinary analysis through the BLM's land use planning system and public comment to determine their wilderness suitability. Suitable areas are recommended to the President and Congress for designation as wilderness.

Wilderness, Wilderness Area: An area formally designated by Congress as a part of the National Wilderness Preservation System.

Withdrawal: An action that restricts the use of public land and segregates it from the operation of some or all of the public land and mineral law. Withdrawals also are used to transfer jurisdiction of management of public land to other Federal agencies.

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LIST OF ABBREVIATIONS AND ACRONYMS

ACEC	areas of critical environmental concern
ADC	animal damage control
ATACMS	Army Tactical Missile System
AUM	animal unit month
BLM	Bureau of Land Management
BMP	Best Management Practices
°C	degrees Celsius
COE	U.S. Army Corps of Engineers
CFR	Code of Federal Regulations
CWA	Clean Water Act
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act
°F	degrees Fahrenheit
FEIS	Final Environmental Impact Statement
FFCA	Federal Facility Compliance Act
FLPMA	Federal Land Policy and Management Act
FMU	fire management unit
FTX	field training exercise
GIS	geographic information system
HIMAD	High- and Medium-Altitude Air Defense
HMP	Habitat Management Plan
ICRMP	Integrated Cultural Resource Management Plan
INRMP	Integrated Natural Resource Management Plan
IRP	Installation Restoration Program
ITAM	Integrated Training Area Management
µg/m^3	micrograms per cubic meter
mg/L	milligrams per liter
MOU	Memorandum of Understanding
MSA	Management Situation Analysis
National Register	National Register of Historic Places
NAAQS	National Ambient Air Quality Standard
NAFTA	North American Free Trade Agreement
NEPA	National Environmental Policy Act
NMCRIS	New Mexico Cultural Resources Information System
NMDGF	New Mexico Department of Game and Fish
NMED	New Mexico Environment Department
NMNRD	New Mexico Energy, Minerals, and Natural Resource Department
NMWQCC	New Mexico Water Quality Control Commission
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OE	ordnance and explosive
OHV	off-highway vehicle
PL	Public Law
PLO	Public Land Order
PM$_{10}$	particulate matter of 10 microns or less
PRMPA	Proposed Resource Management Plan Amendment
RCRA	Resource Conservation and Recovery Act
RFFA	reasonably foreseeable future action
RMP	Resource Management Plan
RMPA	Resource Management Plan Amendment
ROS	Recreation Opportunity Spectrum
R.S.	Revised Statute
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SDZ	Surface Danger Zone
SHPO	State Historic Preservation Office
SHS	standard habitat sites
SWANCC	Solid Waste Authority of Northern Cook County
TA	Training Area
TADC	Training Area Development Concept
TBM	tactical ballistic missile
USC	United States Code
USDA	U.S. Department of Agriculture
USDI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Service
UXO	unexploded ordnance
VRM	Visual Resource Management
WSA	Wilderness Study Area